



AIR TOOLS

are *Preferred* by
construction men
everywhere



Ingersoll-Rand

11 Broadway, N. Y. 4, N. Y.

PORTABLE TOOL SALES AND SERVICE, INC.

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This is a condensed catalog. Sheets showing accessories and equipment have been omitted. For complete information refer to Form 5000.

"Sand Wiper" Backfill Tampers

Sizes 341 and 441

Ingersoll-Rand Tampers

Construction men have found that mechanical tamping is far superior to hand methods. Sizes 341 and 441 Backfill Tampers are ideal for tamping fill in excavations where it is desirable to have the dirt packed solidly and evenly to avoid any subsequent settlement. These tools are also well suited for foundry work; Size 341 for heavy ramming and Size 441 for extra heavy ramming.

A western electric company uses Ingersoll-Rand Tampers in their pole setting operation. On one large job the company set 20 sixty-foot poles in 6½ hours, saving about ½ the time used by hand tamping.

SPECIFICATIONS

Size	341	441
Barrel Bore, inches	1 5/8	2
mm	41	51
Diameter of Butt, inches	5 3/4	5 3/4
mm	146	146
Weight including Butt, pounds	34 7/8	47 1/8
kg.	15.82	21.38
Length Overall, including Butt, inches..	*52 3/4	*50 7/8
mm ...	1340	1295
Hose Connection Pipe Tap, inches	3/8	3/8
Size Hose Recommended, inches	1/2	1/2

*Length shown is with No. 1 Handle. Add 6½" (165 mm) for No. 201 Extra Long Handle.



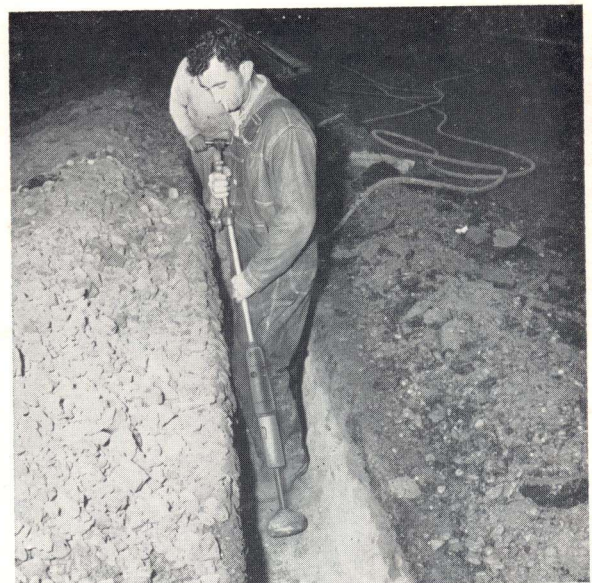
Size 341



Size 441



Two Size 341 Backfill Tampers used on a trenching job.

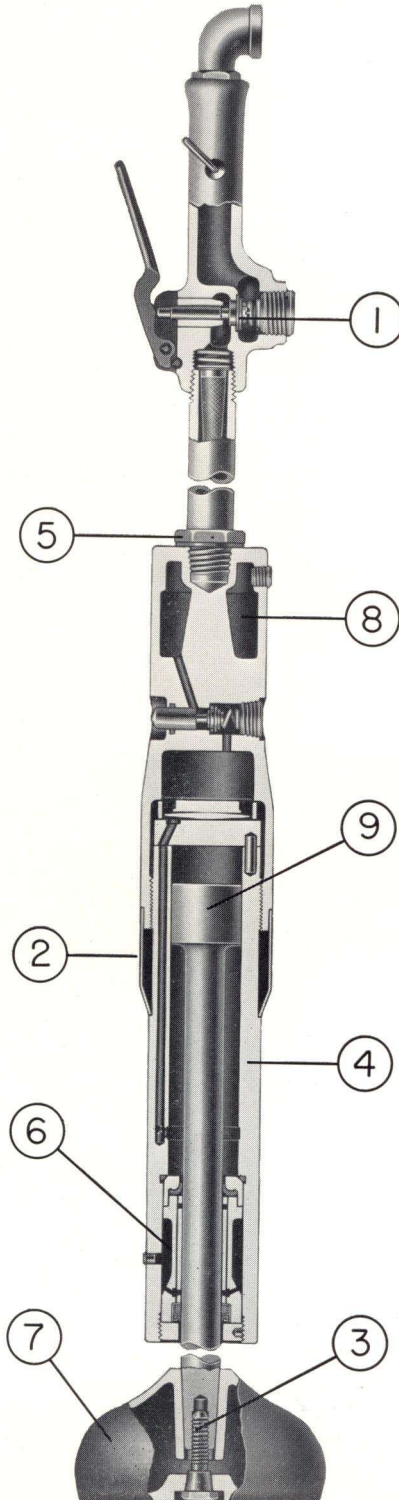


Tamping pipe line trench with a Size 341 Tamper



EQUIPMENT

Size	Standard	Optional
341 and 441	No. 1 Handle (19½" (495mm) long) No. R20 Piston with Round Rod No. M183-5¾ Malleable Butt (5¾" (146mm) dia.) (lock-type)	No. 201 Extra Long Handle (26" (660mm) long) No. L183-6 Aluminum Butt (6" (152mm) dia.) (lock-type) or No. 383-3 Steel Butt (3" (76mm) dia.) (for Size 341 only), or No. 283 Pole Tamping Butt Aluminum (for Size 341 only), or No. M283 Pole Tamping Butt Malleable (for Size 341 only)
	No. 27 Butt Lock Screw Wrench	



At the left is shown a sectionalized view of Size 341 and 441 "Sand Wiper" Backfill Tamper. The sturdy construction typical of all I-R tools permits them to be used on heavy service over long periods of time.

1. The rubber-faced Throttle Valve prevents air leakage, gives long service and provides accurate and sensitive throttling.
2. The Exhaust Deflector may be turned so that the tool exhausts in the desired direction.
3. The Butt is positively retained on the piston by means of a butt locking screw; thus it cannot be shaken loose when in operation.
4. The barrel is hardened and ground for long life and is sealed against dirt and grit.
5. A saucer-shaped spring steel handle lock and lock nut provide positive retention of the handle to the head block.
6. New front end design insures a positive air seal and provides an ample lubrication chamber.
7. The hollow butt reduces the weight of moving parts and makes the entire tool easier to hold.
8. A built-in manually-operated "One Shot" oiler provides continuous piston rod lubrication, reduces wear and increases power by reducing frictional losses.
9. Durable chrome-plated piston rod and head reduces wear and eliminates scoring.

Backfill Tampers

Sizes GT341, GT441 and GTD341

Ingersoll-Rand Tampers

The Ingersoll-Rand Triplex Tamper consists of three standard Backfill Tampers mounted in a yoke. A single air inlet carries the air to all three Tampers simultaneously.

Both Sizes 341 and 441 Tampers are available as Triplex Tampers and carry the symbols GT341, GT441 and GTD341. These tools are ideal on large projects requiring considerable backfilling which cannot be handled by heavier mechanical equipment. With quality uppermost in the eyes of all construction men, a backfill that assures no subsequent settlement is a must. I-R Triplex Tampers with their de-synchronized action and rapid hard hitting butts give that assurance.

Size GT341 and GT441 are standard gang tamping machines. The Size GTD341 is used for narrow ditch tamping.

FEATURES

FAST—One man operating an I-R Triplex Tamper can solidly compact, in $\frac{1}{5}$ the time, the same area as one man operating a single Tamper.

SAFE—The butts are held away from the operators feet by the wheel barrow type handles.

HIGHER LIFTS—20% higher lifts of solidly tamped ground can be had with Triplex Tampers.

EASY TO USE—One man does the work of 3 with less effort than he would use operating a single tamper.

UNIFORM WORK—The wide pattern made with the Triplex Tamper provides systematic uniform coverage of the work.



Size GT341 Triplex Tamper



Size GTD341 Triplex Tamper



Size GT441 Triplex Tamper



SPECIFICATIONS

Size	Weight		Height to top of Manifold		●Width		No. of Units	Size of Units	Barrel Bore of each unit		Piston Stroke of each unit		Hose Connection Pipe Tap, inches	Size Hose Recommended, inches
	lbs.	kg	inches	mm	inches	mm			inches	mm	inches	mm		
GT341	127	57.61	27	686	16½	419	3	341	1½	41	4	102	¾	¾
GT441	172	78.02	25	635	16½	419	3	441	2	51	4	102	¾	¾
GTD341	138	62.60	*	*	9	229	3	341	1½	41	4	102	¾	¾

*Height to top of manifold is 37 inches (940 mm) but the handle bar height is adjustable from 38 inches (965 mm) to 72½ inches (1842 mm).

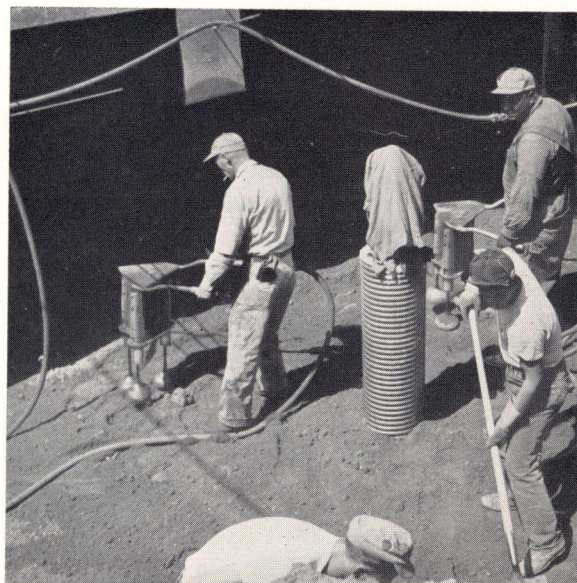
●Does not include handle bars.

EQUIPMENT

Size	Standard Equipment	Optional Equipment
GT341 Triplex Tamper	No. R20 Piston (7/8" (22mm) round rod) (3) No. 27 Butt Lock Screw Wrench No. M183-5¾ Malleable Butt, 5¾" (146mm) dia. (lock-type) (3) Wheelbarrow-type Handles Stopcock Throttle (one lever controls all units)	No. L183-6 Aluminum Butt, 6" (152mm) dia. (lock-type) (3)
GT441 Triplex Tamper	No. R20 Piston (1" (25mm) round rod) (3) No. 27 Butt Lock Screw Wrench No. M183-5¾ Malleable Butt, 5¾" (146mm) dia. (lock-type) (3) Wheelbarrow-type Handles Stopcock Throttle (one lever controls all units)	No. L183-6 Aluminum Butt, 6" (152mm) dia. (3) (lock-type)
GTD341 Triplex Ditch Tamper	No. R20 Piston (7/8" (22mm) round rod) (3) No. 27 Butt Lock Screw Wrench No. 383-3 Steel Butt, 3" (76mm) dia. (3) Wheelbarrow-type Handles Stopcock Throttle (one lever controls all units)	



Size GT341 tamping fill over gasoline tank installation.



Two I-R Triplex Tamperers at work on a construction project.

Sizes MT4 and MT8 Air-Operated Tie Tampers

Ingersoll-Rand Tie Tampers

Ingersoll-Rand Tie Tampers are available in two sizes, Size MT-4 and MT-8.

Size MT-4 Tie Tamper with its exceptionally low air consumption was designed primarily for use with a portable "spot-air" compressor. Four Size MT-4 Tie Tampers can be operated off one portable "spot-air" compressor.

Size MT-8 Tie Tamper is offered for those operations beyond the capacity of the MT-4, such as spot tamping at bridge approaches, crossovers, turnouts, or at any fixed track elevation. This Tamper is also effective on ballast 2" mesh or larger, and on dirty ballast.

Features

- Low air consumption
- Power to do the job
- Light weight
- Easy holding characteristics
- Convenient throttle.

SPECIFICATIONS

	Size MT4	Size MT8
Weight of Tamper, bare, lbs.....	†40¼	54½
kg.....	†18.26	24.72
Weight of Tamper with Tamper Steel, lbs.....	†46½	60¾
kg.....	†21.09	27.56
Length of Tamper with 24" Steel inserted,		
inches.....	45	44¼
mm.....	1193	1124
Air Inlet, Pipe Tap, in.....	¾"	¾"
Size of Hose Recommended, in.....	½"	*¾"
†Deduct 7¼ lbs. or 3.29 kg. for weight of Tamper equipped with Aluminum Handle Shaft.		

*The No. 30 Hose Whip (6 feet of ½" leader and couplings) up to 6 feet long can be used without affecting the performance of the Tamper.



Size MT4



Size MT8



Two Size MT8 Tie Tampers on bridge approach.



Four Size MT4 Tie Tampers and a Type 3R36 Spot-Air Compressor on track maintenance.



EQUIPMENT FOR SIZE MT4

Standard	Optional
No. D3 Ductile Iron Handle Shaft	No. L3 Aluminum Handle Shaft
No. 12 Tie Tamper Steel 24" long ($\frac{3}{8}$ " x 3" Plain Face)	No. 12 Tie Tamper Steel 24" long ($\frac{3}{8}$ " x 3" Plain Face), or
	No. 12 Tie Tamper Steel, 24" long ($\frac{7}{8}$ " x 3" Plain Face), or
	No. 12 Tie Tamper Steel, 24" long ($1\frac{1}{8}$ " x 3" Plain Face), or
	No. 12 Tie Tamper Steel, 24" long ($\frac{3}{4}$ " x 5" Plain Face)

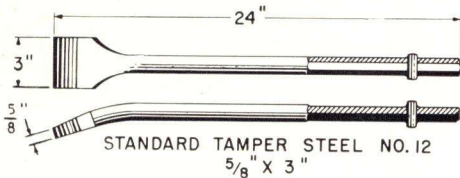
EQUIPMENT FOR SIZE MT8

No. 12 Tie Tamper Steel, 24" long ($\frac{3}{8}$ " x 3" Plain Face)	No. 12 Tie Tamper Steel, 24" long ($\frac{3}{8}$ " x 3" Plain Face), or
	No. 12 Tie Tamper Steel, 24" long ($\frac{7}{8}$ " x 3" Plain Face), or
	No. 12 Tie Tamper Steel, 24" long ($1\frac{1}{8}$ " x 3" Plain Face), or
	No. 12 Tie Tamper Steel, 24" long ($\frac{3}{4}$ " x 5" Plain Face)

TAMPER STEELS

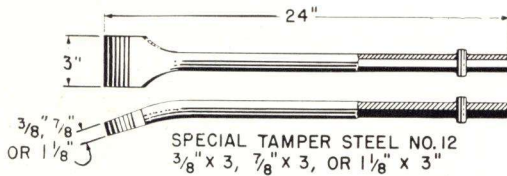
Ingersoll-Rand Tamper Steels for use in Air Tampers give superior service because:

- (1) They are made of special high grade steel.
- (2) They are forged by a special method for strength.
- (3) They receive a special heat treatment for long life.



Standard for Size MT-8

Used for rock ballast 2" mesh or larger.

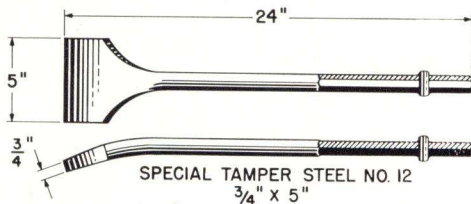


$\frac{3}{8}$ " x 3" is standard for Size MT-4

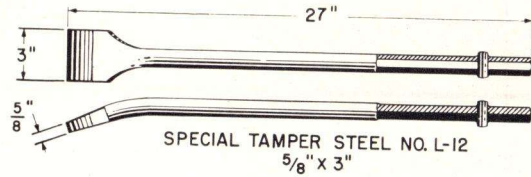
$\frac{3}{8}$ " x 3" used on rock ballast 2" mesh or larger.

$\frac{7}{8}$ " x 3" plain face used for rock ballast finer than 2" mesh, wash gravel and slag.

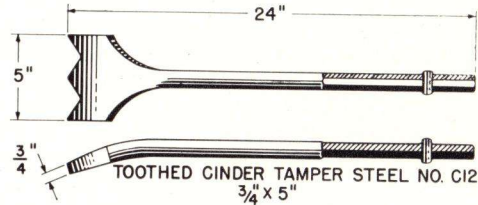
$1\frac{1}{8}$ " x 3" used on cinders, earth, gravel, sand or chat ballast.



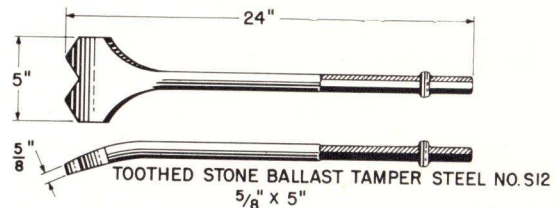
$\frac{3}{4}$ " x 5" plain face on cinders, earth, gravel, sand or chat ballast.



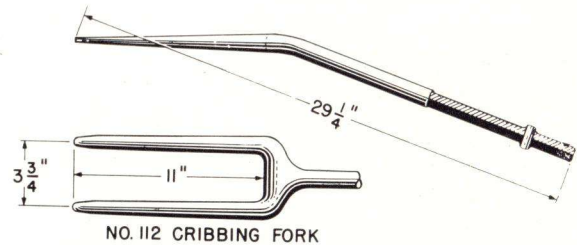
For same work as No. 12 $\frac{5}{8}$ " x 3" where longer overall length is desired.



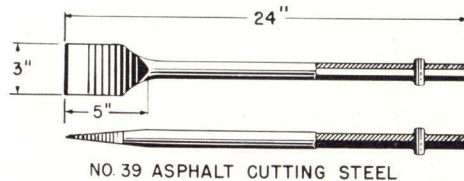
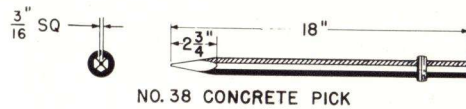
For tamping cinders, gravel or very fine crushed stone.



For tamping stone ballast.



For digging out cribs between ties, when skeletonizing track or cleaning ballast.



Special purpose bars used on crossing or station platform work where asphalt or concrete must be removed.

Air-Operated Diggers

Ingersoll-Rand Diggers

FEW air tools are as labor-aiding and money-saving as the I-R line of air-operated diggers. One man using one of these diggers can loosen more material than six to eight men using ordinary hand methods. They make possible big savings in winter excavation work of all kinds where frozen ground must be picked or loosened. Six sizes are available, ranging in weight from 19½ to 37½ pounds (8.84 to 17.07 kg.). In addition, there are two sizes of the Mine Sampling and Hitch Cutting Tools which closely resemble the diggers in construction.

APPLICATIONS

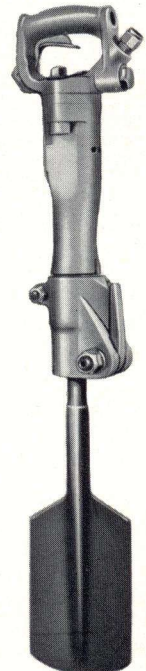
1. Loosens gravel, clay, hard pan, etc. in open cut work.
2. Loosens dirt in trenches.
3. Cuts clay and digs hard dirt in tunnel work.
4. Cuts out brick or asphalt paving in pipeline work.
5. Loosens compacted or frozen materials when unloading cars, etc.
6. With moil point steels, suitable for light and medium demolition work.



Size 59 Digger
with Flat Pick.



Size 75 Digger
with Spade.



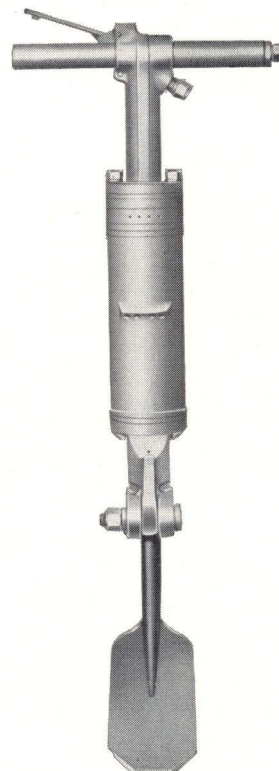
73L Digger
with Spade



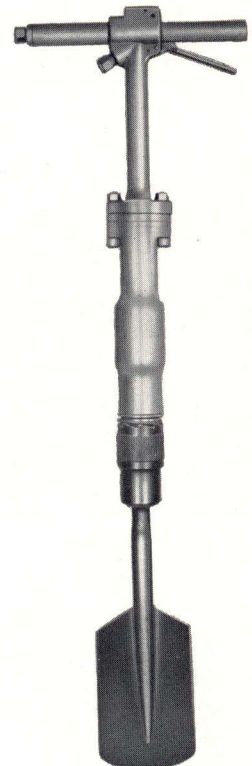
Size 73 Digger with
moil point for demo-
lition work.



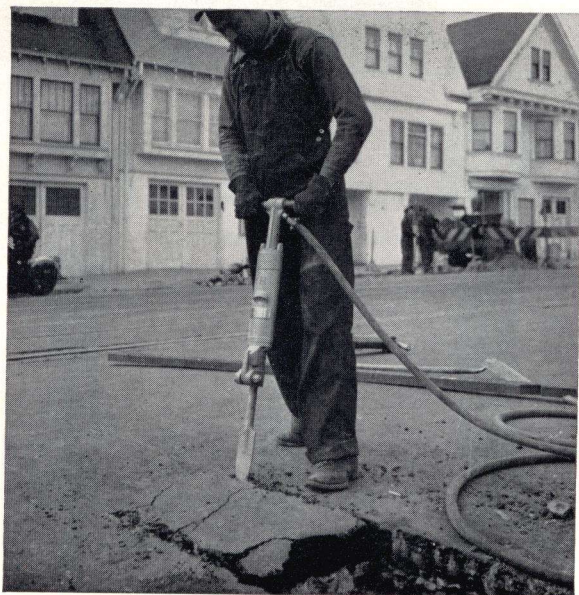
Size 73 Digger with
A1 Outside Trigger
Handle and Spade.



Size 159 Digger with
Flat Pick.



Size 173 or 175 Dig-
ger with Spade.



Size 159 Digger loosening asphalt.



Size 75 Digger used in trench work.

Size 273 or 275 Mine Sampling and Hitch Cutting Tool with "Jackhammer" Steel.



Hitch Cutting and Mine Sampling Tools

Sizes 273 and 275 are lightweight tools designed for hitch cutting and mine sampling in metal mines, coal mines and other work where easily handled, powerful tools are required. They are also suitable for light demolition work, loosening compacted materials, etc. They are usually operated with Jackhammer snubber steels having $\frac{7}{8}$ " (22mm) x $3\frac{1}{4}$ " (83mm) straight hexagon shanks.

SPECIFICATIONS

SIZE	Piston Stroke		*Length Overall		*Weight		Hose Con- nection pipe tap, Inches	Size Hose Recom- mended, Inches	Work Adapted For
	inches	mm	inches	mm	lbs	kg			
73	2½	64	19¼	489	19½	8.84	¾	½	{ All kinds of ground in caissons and large tunnels, core breaking and demolition work. Trench digging, shaft sinking in clay and gravel.
73L	2½	64	18½	470	24¾	11.06	¾	½	
173	2½	64	26¼	667	24½	11.11	¾	½	
173L	2½	64	25½	648	29¾	13.32	¾	½	
75	4	102	21¾	552	26¼	11.91	¾	½	{ Bench and bottom work in large tunnels, hardpan, frozen ground very stiff clay, etc.
75L	4	102	21	533	31½	14.12	¾	½	
175	4	102	29¾	746	31	14.06	¾	½	
175L	4	102	28¾	727	35¾	16.27	¾	½	
69	4½	114	22¾	575	33¾	15.31	¾	¾	{ Stiff gravel, hardpan, frozen ground. Trench digging, shaft sinking in stiff gravel, hardpan, frozen ground. Mine sampling and hitch cutting. Mine sampling and hitch cutting.
169	4½	114	26¾	670	37¾	17.07	¾	¾	
273	2½	64	17¾	451	18¾	8.50	¾	½	
275	4	102	20¼	514	25½	11.57	¾	½	

*Without Accessory.

†A whip of ½" hose up to 12 ft. long can be used without seriously affecting the power.

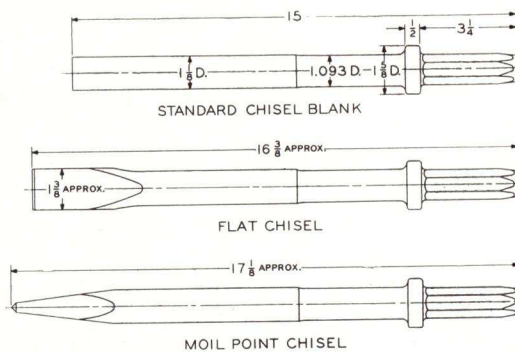
Equipment and Accessories

Ingersoll-Rand Diggers

Size	Standard Equipment	Optional Equipment
73 and 75	No. 22 Retaining Sleeve No. 33 Buffer Sleeve No. 86 Hexagon Nozzle, and Two No. 50 Buffers, and Two No. 331 Heavy Buffer Washers No. A92 Inside Trigger Handle (closed-type)	No. 84 Square Nozzle, and Three No. 50 Buffers, and Two No. 431 Light Buffer Washers No. A1 Outside Trigger Handle (open-type) } (for size 73 only)
173 and 175	No. 22 Retaining Sleeve No. 33 Buffer Sleeve No. 35 T-Handle No. 86 Hexagon Nozzle, and Two No. 50 Buffers, and Two No. 331 Heavy Buffer Washers	No. 84 Square Nozzle, and Three No. 50 Buffers, and Two No. 431 Light Buffer Washers } (for size 173 only)
73L and 75L	No. 86 Hexagon Nozzle No. A92 Inside Trigger Handle (closed-type) No. A240 Latch-type Front Head Assembly	No. A1 Outside Trigger Handle (open-type)
173L and 175L	No. 35 T-Handle No. 86 Hexagon Nozzle No. A240 Latch-type Front Head Assembly	
59 and 159	No. 35 T-Handle (for 159 only) No. A92 Inside Trigger Handle Complete (closed-type) (For 59 only) No. 86 Hexagon Nozzle No. A240 Front Head (for use with accessories having $\frac{7}{8}$ " hexagon shank, $3\frac{1}{4}$ " long with $1\frac{1}{2}$ " dia. collar)	No. A340 Large Front Head (for use with accessories having 1" hexagon shank, $4\frac{1}{4}$ " long)
273 and 275	No. 22 Retaining Sleeve No. 86 Hexagon Nozzle No. A92 Inside Trigger Handle (closed-type)	No. A1 Outside Trigger Handle (open-type)

CHISELS

For picking or stripping in coal mines, demolishing concrete, breaking soft rock or shale and core breaking in foundries. Available as a blank, or finished with moil point or as a flat chisel.



When ordering Chisels, specify:

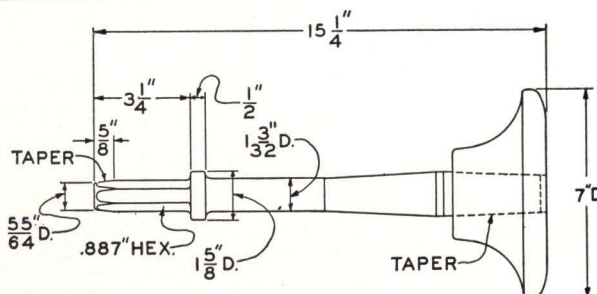
- Blank or Finished
If Finished, whether Moil Point or Flat Chisel is required.
- Overall length -
15" Standard, 18", 24", 30", or 36"

For other types of Shanks see illustrations on back of sheet.

Part No.	Type of Shank	Size Diggers Used On
16H 16S	Straight Hex. Square	59, 159, 73, 173, 75 and 175 73 and 173 equipped with No. 84 Square Nozzle
516H	Straight Hex.	59 and 159 with A340 Large Front Head

Tamping Pad and Tamping Pad Shank

For tamping backfill.



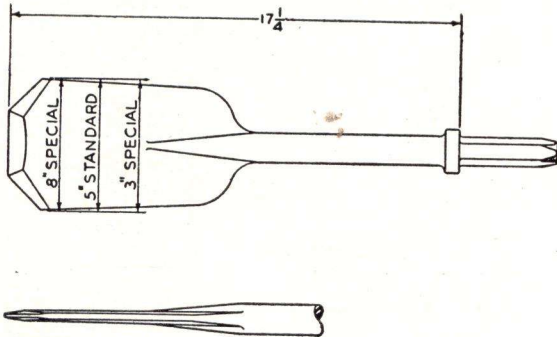
Part No.	Name of Part	Size Diggers Used On
75H 76 A76	Tamping Pad Shank (Straight Hex.) Tamping Pad Tamping Pad with Shank	59 and 159 with No. 86 Straight Hex. Nozzle.
575H 576H A576H	Tamping Pad Shank (Straight Hex.) Tamping Pad Tamping Pad with Shank	59 and 159 with No. A340 Large Front Head.



Digger Accessories in Inches

FLAT PICKS

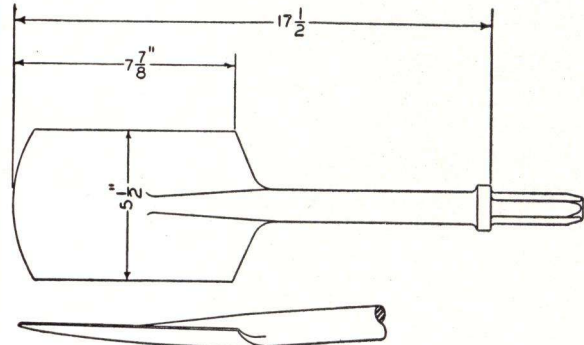
For coarse gravel, stoney ground, frozen ground, and other hard-to-dig material.



Part No.	Type of Shank	Size Diggers Used On
177H	Straight Hex.	59, 159, 73, 173, 75 and 175 equipped with No. 86 Straight Hex. Nozzle (3", 5" or 8" width)
277S	Square	73 and 173 equipped with No. 84 Square Nozzle (3" or 5" width)
577H	Straight Hex.	59 and 159 with A340 Large Front Head (5" width)

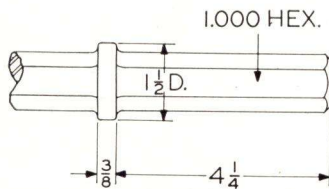
SPADES

For trench digging and tunneling in clay, earth, hard sand, gravel, etc. and for general digging work.



Part No.	Type of Shank	Size Diggers Used On
60H	Straight Hex.	59, 159, 73, 173, 75 and 175 equipped with No. 86 Straight Hex. Nozzle
60S	Square	73 and 173 equipped with No. 84 Sq. Nozzle
560H	Straight Hex.	59 and 159 with No. A340 Large Front Head

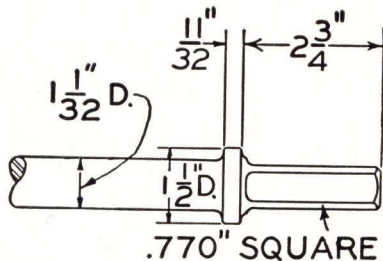
TYPES OF SHANK



Straight Hex Shank

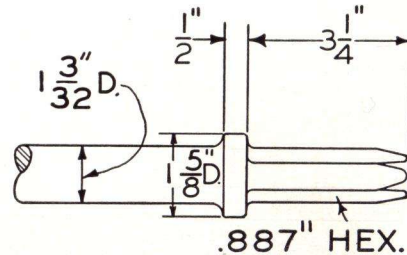
For Sizes 59 and 159 equipped with No. A340 Large Front Head.

Any Paving Breaker accessory having a 1" x 4 1/4" hexagon shank can be used with Size 59 or 159 Digger equipped with a No. A340 Large Front Head.



Square Shank

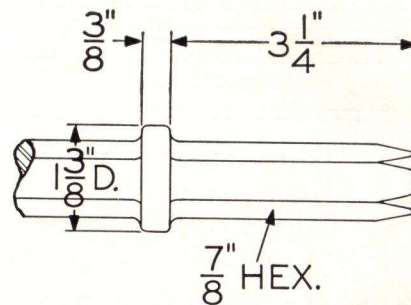
For Sizes 73 and 173 equipped with square nozzle. See front of sheet for accessories available with this type shank.



Hexagon Shank with 1 5/8" dia. collar

For Sizes 59, 159, 73, 173, 75, 175, 730 and 750 equipped with straight hexagon nozzle.

See front of sheet for accessories available with this type shank.



Hexagon Shank with 1 3/8" dia. collar

For Sizes 73L, 173L, 75L, 175L, 273 and 275 equipped with straight hexagon nozzle.

Any Paving Breaker accessory having a 7/8" x 3 1/4" hexagon shank can be used with Size 273 or 275 Mine Sampling and Hitch Cutting Tool equipped with a straight hexagon nozzle.

Air-Operated Sump Pumps Centrifugal Type

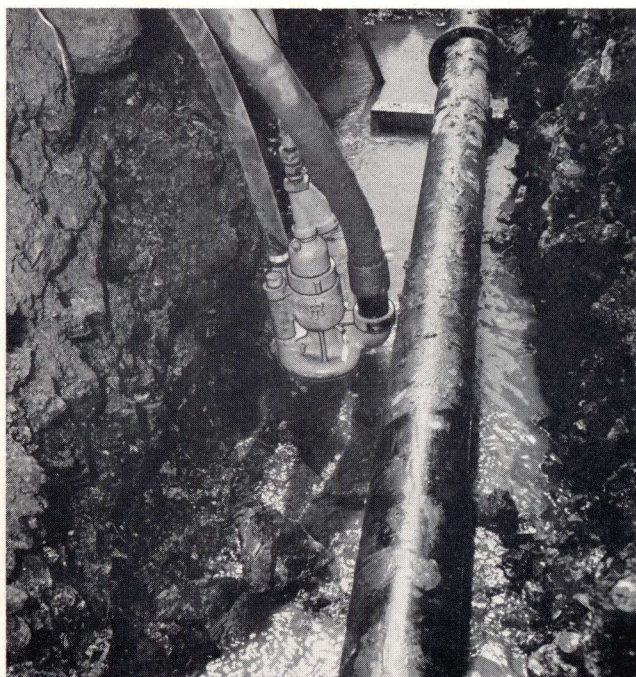
Ingersoll-Rand Sump Pumps

THE Ingersoll-Rand air-operated Sump Pump is a sturdy, lightweight unit designed for handling clear or dirty water, oil, sewage, or moderately heavy sludge. It is light enough to be easily carried about by one man, and is most useful for pumping out sumps, trenches, manholes, caissons, cofferdams, tanks, bilges, etc.

Size 250 is ideal for general pumping work of all kinds. Size 250B with all exterior parts made of bronze is used for pumping corrosive or inflammable liquids. Size 35 is recommended where higher heads are encountered, such as dewatering shafts, pumping from one level to another in mines, etc.

CAPACITIES

SIZE	Total Head		DELIVERY			
	Feet	Meters	At 80 psi (5.63 kg/sq cm) Air Pressure		At 90 psi (6.33 kg/sq cm) Air Pressure	
			Gal. per min.	Liters per min.	Gal. per min.	Liters per min.
250	10	3.05	330	1249.6	340	1287.5
	30	9.14	300	1136	310	1173.9
	50	15.24	235	889.6	255	965.3
	75	22.86	140	529.9	175	662.4
	100	30.48	55	208.2	90	340.7
35	100	30.48	150	567.8	170	643.5
	125	38.10	125	473.1	150	567.8
	150	45.72	100	378.5	125	473.1



Size 250 Sump Pump clearing a trench after pipe line repair



Size 250 Sump Pump



Size 35 High Head Sump Pump

The table below lists the actual deliveries of Size 250 Sump Pump operating on 80 psi (5.63 kg/sq cm) air pressure through 50 ft. (15.24 meters) of 2 1/2" Fire Hose.

Lift		Delivery	
Feet	meters	Gals. per min.	Liters per min.
10	3.05	260	984.6
20	6.10	240	908.9
30	9.14	225	851.7
40	12.19	210	795.3
50	15.24	195	738.1

SPECIFICATIONS

SIZE	250	250B	35
Height overall, inches ...	22 3/4	22 3/4	*27 1/8
mm.....	578	578	689
Height less air strainer, inches.....	17 1/2	17 1/2	22 1/8
mm.....	445	445	562
Size opening pump will enter, inches.....	9 1/4 x 11 5/8	9 1/4 x 11 5/8	9 1/2 x 11 1/2
mm.....	235 x 295	235 x 295	241 x 292
Weight, lbs.....	67 1/4	79 1/2	*80
kg.....	30.5	36.06	36.29
Size Air Inlet—Pipe Tap, inches.....	1	1	1
Size Inlet Hose Recommended, inches.....	1	1	1
Size Exhaust—Pipe Tap, inches.....	1 1/4	1 1/4	1 1/4
Size Exhaust Hose, inches.....	1 1/2	1 1/2	1 1/2
Discharge — Pipe Tap, inches.....	2 1/2	2 1/2	2 1/2

*Can be furnished with 2 1/2" British Pipe Tapped Discharge at no extra cost.



FEATURES OF I-R SUMP PUMPS

One Piece Housing—Encloses a Multi-Vane Motor and a closed impeller type centrifugal pump.

Centrifugal Governor—Limits the speed and conserves air.

Bearing Construction—The impeller and motor are carried by three ball bearings individually sealed to protect them against dirt and water.

Malleable Iron Inlet—Keeps large solids and debris out of the pump.

Protection—No damage will result to the pump if the sump is pumped dry.

Air Strainer—Protects the motor from dirt in the air line. It can be cleaned without disconnecting the hose.

Lubrication—The back head of the motor has a large oil reservoir; the housing has a grease fitting to permit lubrication of the bearings and packing.

Quality Materials—Bronze, stainless steel or rustproof materials are used where they are best suited.

Size	Standard Equipment	Optional Equipment
250 and 250B	No. 148 Inlet No. A184 Exhaust Hose (10 feet of 1½" hose complete with nipple and clamp) No. A267 Air Strainer Complete	No. 147 Perforated Bottom Plate
35	No. 148 Inlet No. A184 Exhaust Hose (10 feet of 1½" hose complete with nipple and clamp) No. A267 Air Strainer	

ACCESSORIES

Furnished at No Extra Cost only when specified.

No. 183 2½" Fire Hose Adapter (see description below), OR

No. 190 Expanding Coupling (2½" male pipe thread to 3" female pipe thread—for attaching 3" pipe to Pump), OR

No. 192 Blank Adapter (one end 2½" male pipe thread to fit pump discharge; other end blank)

No. 228 Grease Gun

No. 1160-1 Pipe Line Throttle Valve

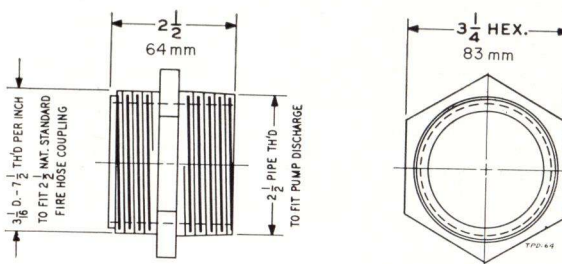
Discharge Hose Available at Extra Cost

No. 181 Hose consists of 50 ft. of 2½" collapsible hose with a coupling on one end to fit the No. 183 Fire Hose Adapter shown below.

No. 182 Hose consists of 50 ft. of 2½" collapsible hose with a coupling on one end to fit the No. 183 Fire Hose Adapter and a male coupling on the other end with a 3¼" -7½ thread to fit a 2½" National Standard Fire Hose Coupling. As many lengths as desired can be connected together.

Fire Hose Adapter Part No. 183

For attaching 2½" fire hose to all I-R Sump Pumps. Regularly furnished as shown to fit the coupling nut of 2½" National Standard Fire Hose Couplings but can also be furnished with hose end blank, to be threaded by customer as desired.

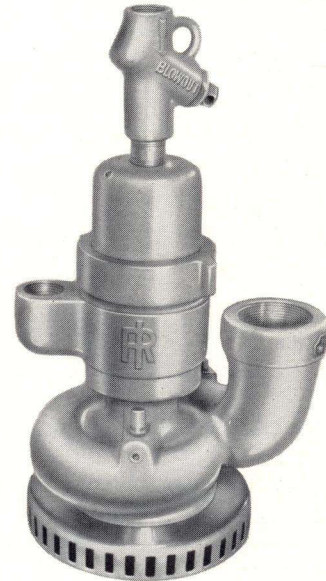


FIRE HOSE ADAPTER

Size 225 Air-Operated Sump Pump

Ingersoll-Rand Sump Pumps

Ingersoll-Rand's new Size 225 Sump Pump is a lightweight, compact unit that is highly efficient for the types of application normally encountered by contractors and utility maintenance crews. This compact sump pump is designed to operate on the moderately low volume of air from a small, portable compressor thus making it ideal for dewatering cellars, excavations, manholes, ditches, holes for utility poles etc.



Size 225 Sump Pump

SPECIFICATIONS

(Performance figures are at 90 psi or 6.3 kg/cm² air pressure)

SIZE 225	Measure	
	U.S.	Metric
Free Speed, rpm.....	6000	6000
Speed at Maximum Horsepower, rpm.....	5300	5300
Maximum Horsepower.....	2.65	2.69
Maximum Torque, ft-lbs—mkg....	4.8	0.664
Overall Height, inches—mm.....	16¼	413
Height less Air Strainer, inches—millimeters.....	12⅞	327
Size Opening Pump will Enter, inches—millimeters.....	7½ x 9⅜	191 x 238
Weight, pounds—kilograms.....	33¾	15.3
Air Inlet Pipe Tap, inches.....	¾	—
Size Inlet Hose Recommended, inches—millimeters.....	¾	19
Exhaust Pipe Tap, inches.....	1	—
Size Exhaust Hose Recommended, inches—millimeters.....	1	25
Discharge Pipe Tap, inches.....	2	—

The following table shows the rated water delivery of Size 225 Sump Pump against various total heads at 80 psi air pressure.

Total Head		Delivery per Minute	
Feet	Meters	U. S. Gallons	Liters
15	4.57	180	681
30	9.15	145	549
45	13.72	110	416
60	18.29	75	284

Deliveries shown in the above table apply to total heads. Actual deliveries are reduced through frictional loss in the discharge hose or pipe. With the pump operating on 80 psi air pressure, the actual water delivery through 50 ft. of 2" Fire Hose for various lifts is as follows:

Lift		Delivery per Minute	
Feet	Meters	U. S. Gallons	Liters
10	3.05	160	606
20	6.10	145	549
30	9.15	130	492
40	12.19	115	435
50	15.24	97	367



EQUIPMENT

Standard

No. 148 Inlet
No. A184 Exhaust Hose Assembly (10 ft. of 1" hose assembled with
No. 185 Exhaust Hose Nipple)
No. A267 Air Strainer Assembly
No. 283 Air Inlet Valve

Optional

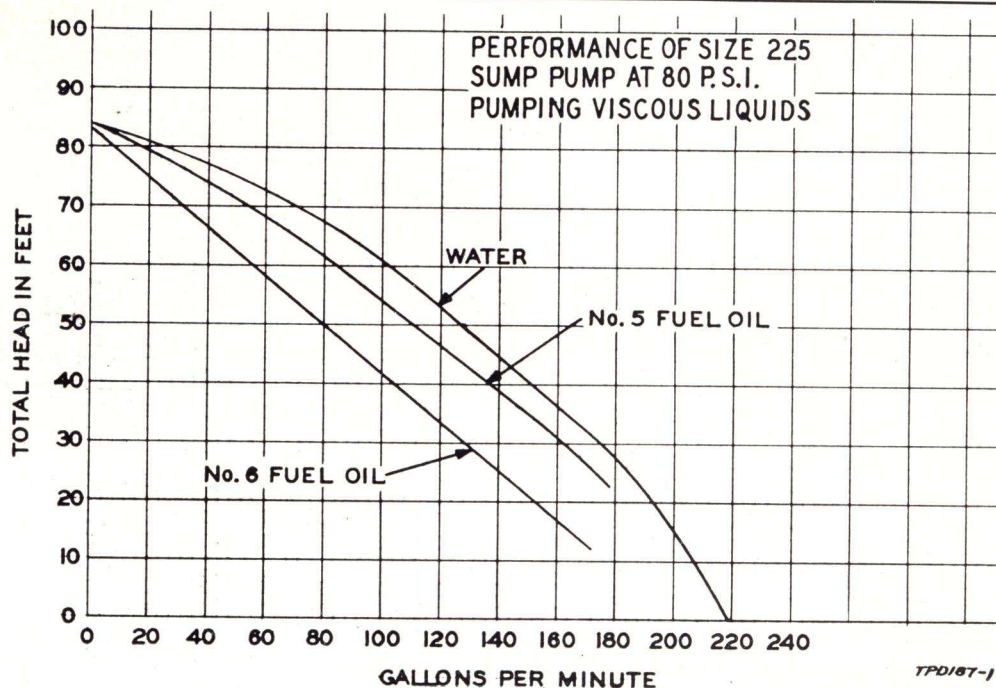
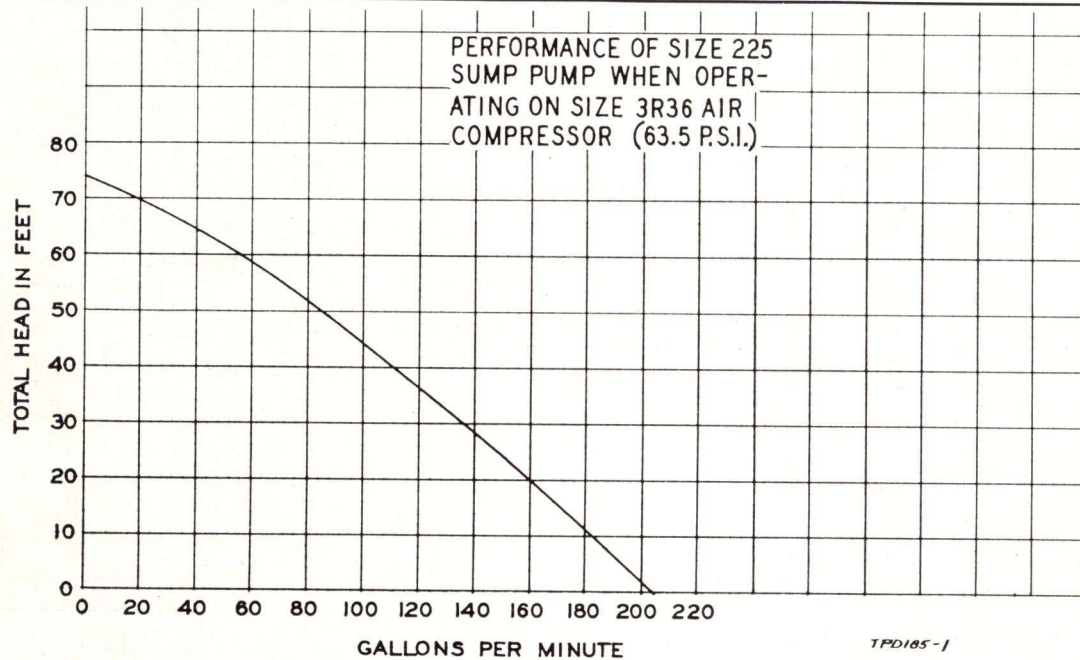
No. 147 Perforated Bottom Plate.

ACCESSORIES: Furnished at no extra cost
but only when specified by part number and
part name.

No. 183 Fire Hose Adapter
No. 228 Grease Gun

EQUIPMENT AVAILABLE AT EXTRA COST

No. 181 Discharge Hose (50 ft. of 2" single jacket fire
hose with female Expansion Ring Coupling on one end
to fit 2" male pipe thread)
No. 205 Hose Coupling Spanner Wrench



Concrete Vibrators

Ingersoll-Rand Vibrators

TWO sizes of concrete vibrators are built for light and medium service. They are driven by powerful "Multi-Vane" air motors and are designed to operate submerged in concrete.

APPLICATION

Mechanical vibration causes concrete to flow like a liquid, completely filling the form. It causes all air to rise to the surface, thus eliminating honey-combing and producing very dense concrete. The use of vibration makes possible more perfect compaction of a much stiffer mix than can be placed by hand. The stiffening of the mix (by reducing the quantity of mixing water) will materially increase strength, density, watertightness and resistance to weathering. The amount of cement can also be reduced, maintaining the original water-cement ratio, with no reduction in strength but with a substantial saving in cement.

In addition, a better bond is made between concrete and reinforcing steel when internal vibration is employed. Quicker setting is induced and patching is practically eliminated.



Size 10V Concrete Vibrator.



Size 2V Concrete Vibrator.

Standard Equipment for Sizes 10V and 2V

Rolling Throttle

Type IR0-8 Air Line Lubricator (for Size 2V)

No. 704 Air Line Lubricator (for Size 10V)

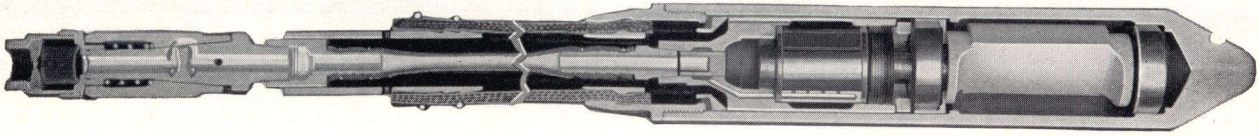
No. A267 Air Strainer Complete

No. 275 Lock Screw Wrench (for Size 10V only)

*Flexible Hose Handle (5 ft. long)

*Flexible Hose Handle 10 feet, 15 feet or 20 feet long will be furnished in place of 5 foot length if specified.

Size	10V	2V
Vibrating Unit		
Diameter, Inches.....	2 1/2	4 1/8
mm.....	64	105
Length, Inches.....	17 3/4	18 3/4
mm.....	451	476
Weight, lbs.....	16 1/4	34
kg.....	7.37	15.42
Complete Unit		
Length, including handle, inches....	84 7/8	86
mm.....	2156	2184
Weight, Lbs.....	25 1/2	45 1/2
kg.....	11.57	20.64
Vibrations per Minute at 90 lbs. pres....	9000	6000
Hose connection, Pipe Tap, inches.....	1/2	1/2
Size hose recommended, inches.....	1/2	1/2



Sectional view of a Concrete Vibrator.

Size 10V is a small, lightweight vibrator with a flexible hose handle. It is suitable for average building construction, walls, floor and roof slabs, medium columns and light foundation work. It will handle sections up to about 30" (762mm) with concrete of at least 2½" (64mm) slump. In thinner sections it will handle stiffer mixes. Because of its small diameter it is ideal for use in thin sections, around closely spaced reinforcing and in intricate forms.

Size 10V Vibrator is designed to eliminate all possible formation of rust in the motor.

Size 2V is larger and more powerful than the 10V and has proved itself in many years of successful operation. It is suitable for heavy walls and superstructures, large columns and most foundation work. It will handle stiff mixes (less than 2½" (64mm) slump) and coarse aggregates and will compact two to three times as much concrete as the Size 10V.

FEATURES

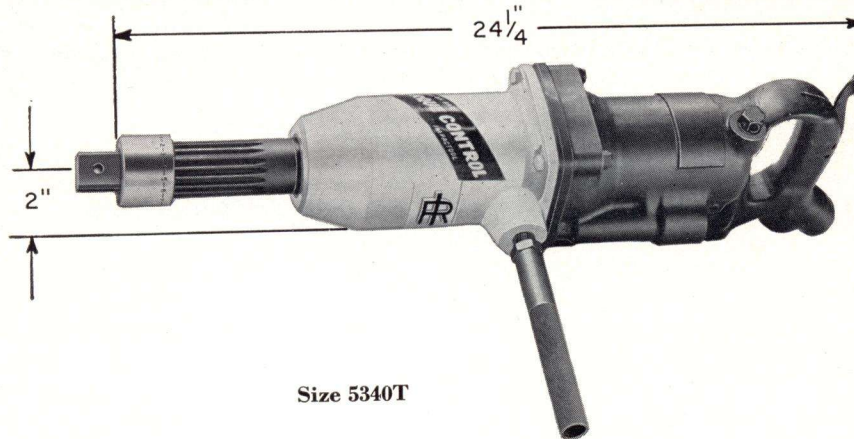
1. Powered by an efficient and dependable "Multi-Vane" Air Motor.
2. Ball bearings are used throughout; oversize bearings of special vibration resisting design are used on eccentric weight.
3. The vibrating unit is completely sealed against entrance of concrete or water.
4. The rolling throttle can be set in any position from closed to wide open, placing frequency and intensity of vibration under complete control of operator.
5. All motor parts are rust proof or rust resistant. End plates are bronze, motor housing and motor housing nuts are cadmium plated, rotor is cadmium plated and cylinder is of chrome alloy steel.
6. Rotor ball bearings have synthetic rubber seals on both sides to retain the lubricant and to keep out the moisture.
7. Motor vanes are made of moisture resistant material.



Size 2V Vibrator on a construction job.

Size 5340T Torque Range
150 to 550 ft. lbs.
(20.74 to 76.04 meters kg.)

Ingersoll-Rand
TORQUE CONTROL
Impacttools



Size 5340T

Size	5340T
Speed, rpm.....	700
Impacts per minute.....	1270
Weight, less Socket, lbs.....	31 1/2
kg.....	14.29
Length Overall, less Socket, inches.....	24 1/4
mm.....	616
Side to Center distance, inches.....	2
mm.....	51
Hose Connection Pipe Tap, inches.....	3/8
Size Hose Recommended, inches.....	*3/4
Size Square Driver, inches across flats.....	1
Adjustable Torque Range, ft. lbs.....	150 to 550
meters kg.....	20.74 to 76.04

*A whip of 1/2" hose up to 10 ft. long can be used without seriously affecting performance. Size 5340TV is available for vertical suspension.

Size 5340T Torque Control Impacttool is offered for those applications where the torque required lies within a range of from 150 to 550 ft. lbs. (20.74 to 76.04 mkg). Designed primarily for high strength bolting in structural steel erection, these tools will perform indefinitely on both erection and industrial applications with excellent results in time saving and quality control. When properly adjusted, this tool will run series after series of nuts to identical tightness, eliminating the need for expensive and time-consuming test equipment.

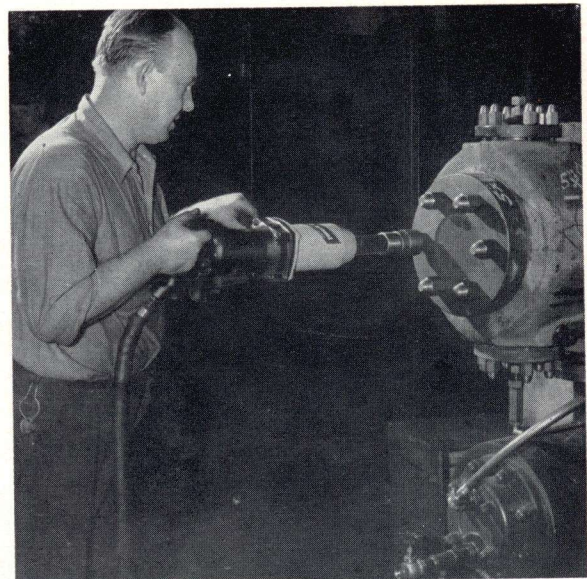
ADVANTAGES

Stronger Joints—Each fastener bears its proportionate share of the load.

Faster Fastening—Tool runs at full speed and shuts off automatically at the desired torque.

Reduce Maintenance—This tool has the same rugged construction and ease of maintenance of all I-R Impacttools.

Less Operator Fatigue—Eliminates need for operator's judgement in controlling final torque. Excellent balance and ease of operation make tool easy to handle.



Size 5340T tightening 7/8" acorn nuts to 500 ft. lbs. on compressor head.



EQUIPMENT

Standard Equipment	Optional Equipment
No. 40 Housing with Outside Trigger Grip Handle No. 48 Dead Handle No. 215 Socket Pin (2) No. 216 Socket Pin Retainer (2) No. H735 Heavy Torsion Bar (adjustable 300 to 500 ft. lbs. (41.48 to 69.13 mkg.) torque)	No. 140 Housing with Inside Trigger Grip Handle No. A41 Side Spade Handle Assembly No. L735 Light Torsion Bar (adjustable 150 to 260 ft. lbs. (20.74 to 35.95 mkg.) torque) No. EH735 Extra Heavy Torsion Bar (adjustable 400 to 550 ft. lbs. (55.3 to 76.04 mkg.) torque)

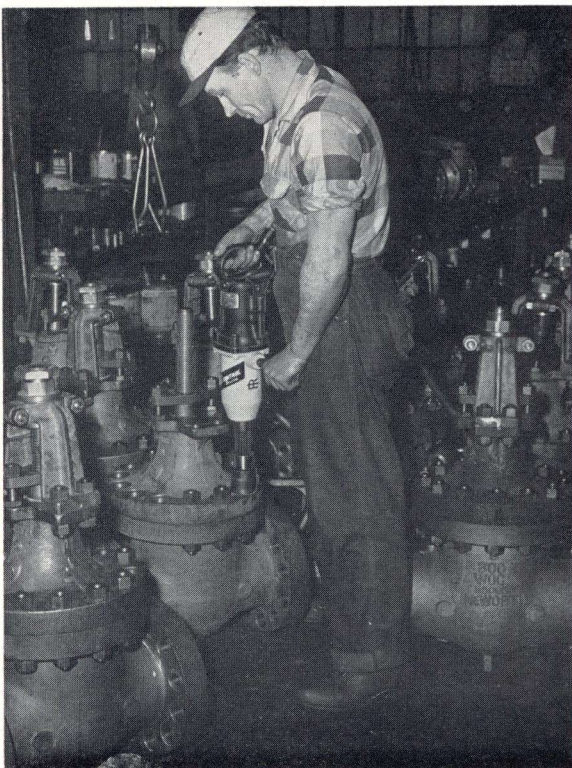
ACCESSORIES

(Furnished when specified at no extra cost.)

- No. 228 Grease Gun
- No. 243 Hammer Case Bolt Nut Wrench
- No. 284 Motor Lock Nut Wrench
- No. 366 Horizontal Hanger (for horizontal suspension) (not for Size 5340TV)

(Available at extra cost.)

- No. A950 Screw Type Torque Setting Jig
- Hexagon Sockets (1" square drive hole, size as specified)
- Square Sockets (1" square drive hole, size as specified)



Size 5340T tightening nuts on 1" alloy steel studs to 500 ft. lbs. torque, on valve bonnets.



Size 5340T running $\frac{7}{8}$ " high strength bolts to 470 ft. lbs. of torque on construction job.

Size 8040 - $\frac{3}{8}$ " (10 mm) Capacity

Ingersoll-Rand Impacttools



Size 8040

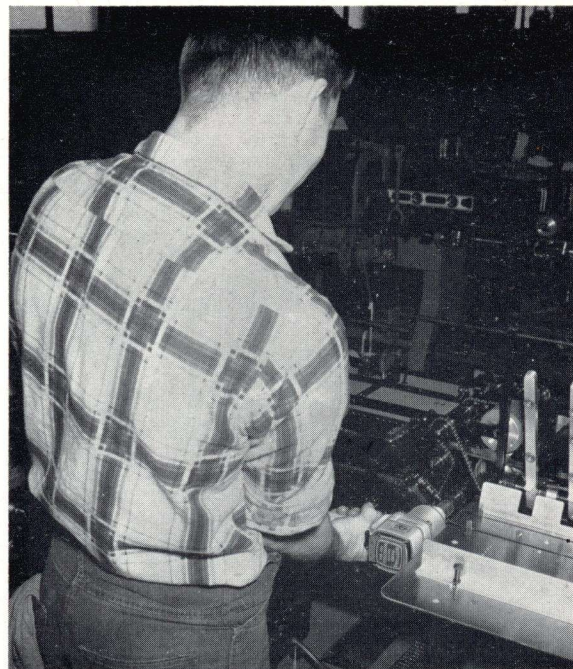
Size	8040
Capacity, Bolt Size, inches.....	$\frac{3}{8}$
mm.....	10
Weight, Less Socket, lbs.....	$5\frac{7}{8}$
kg.....	2.66
Length Overall, inches.....	$6\frac{3}{8}$
mm.....	162
Side to Center Distance, inches.....	$1\frac{11}{32}$
mm.....	34
Impacts per minute.....	1200
Free Speed, rpm.....	6000
Size Square Driver, inches.....	$\frac{1}{2}$
Hose Connection Pipe Tap, inches.....	$\frac{1}{4}$
Size Hose Recommended, inches.....	$\frac{5}{16}$

*Use either $\frac{3}{8}$ " or $\frac{1}{2}$ " hose with Quick Couplings.

☐ Also available with $\frac{3}{8}$ " pipe tap.

†Can also be furnished with $\frac{5}{8}$ " square driver.

Here is an entirely new $\frac{1}{2}$ " drive Impacttool. This revolutionary new tool is almost 2 inches (51 mm) shorter and $\frac{3}{8}$ of a pound (.17 kg.) lighter than the previous model, yet it provides 40% more power and 100% faster rundown speed. This high power-to-size ratio makes the new Size 8040 Impacttool one of the most powerful tools for its rated capacity on the market today. Lightweight, compact and easy to handle this new Impacttool offers the utmost in performance and durability. Maintenance cost are kept to a minimum with a new self-contained, pressure-feed lubrication system for the impact mechanism, which assures positive, continuous lubrication without manual greasing.



Size 8040 Impacttool makes short work of tightening bolts in a close-quarter application.



Standard Equipment	Optional Equipment
No. 565 Air Inlet Bushing (1/4" pipe tap inlet)	No. 465 Air Inlet Bushing (3/8" pipe tap inlet) (Recommended when Quick Couplings are used)
*No. 726 Anvil (1/2" square drive)	*No. 826 Anvil (5/8" square drive), or *No. 314-3 3" (76 mm.) Extended Anvil (1/2" square drive), or *No. 314-6 6" (152 mm.) Extended Anvil (1/2" square drive), or *No. 314-8 8" (203 mm.) Extended Anvil (1/2" square drive), or No. A926-7 Quick Change Anvil (for Screw Driver Bits or Socket Drivers with 7/16" hex. shanks).
No. 727 Steel Hammer Case	

*Anvils with 1/2" and 5/8" square drivers and all Extended Anvils are furnished with built-in Pin-type Socket Retainer unless Ball-type is specified.

ACCESSORIES

Furnished at no extra cost but only when specified.

- No. 130 Hose Whip (8 ft. of 5/16" hose complete with fittings)
- No. 365 Vertical Hanger, or
- No. 366 Horizontal Hanger
- No. 380 Oil Chamber Plug Wrench
- No. 562 Hammer Case Cap Screw Wrench
- No. 579 Housing Cover Cap Screw Wrench
- No. A915 Independent Power Regulator
- No. A925-7 Quick Change Chuck Assembly (for 7/16" hex. shank Screw Driver Bits and Socket Drivers)

EQUIPMENT AVAILABLE AT EXTRA COST

Hex. Sockets or Square Sockets—1/2" or 5/8" square drive—size as specified.

No. 214 Anvil Extension (5", 7", 9" or 10" (127 mm, 178 mm, 229 mm or 254 mm) long—specify length and whether pin or ball-type socket retainer is desired).

Socket Drivers (7/16" hex. shank to 1/2" square drive—for use in No. A925-7 Quick Change Chuck or No. A926-7 Quick Change Anvil):—

Part No.	Overall Length inches	millimeters
SQ2216-7	2 3/4	70
SQ4016-7	5	127
SQ6416-7	8	203
SQ9616-7	12	305

7/16" Hex. Shank Solid Screw Driver Bits for any specified type of screw head (for use in No. A925-7 Quick Change Chuck or No. A926-7 Quick Change Anvil).

No. 812 Screw Driver Adapter (Has 1/2" square drive hole. Uses any 5/16" square shank Bit listed below.)

Any SPB-5 Square Phillips Bit with 5/16" square shank.

Any SCB-5 Square Clutch Bit with 5/16" square shank.

Any SHXB-5 Square Hexagon Bit with 5/16" square shank.

No. SRPB-081-5 Square Reed and Prince Bit with 5/16" square shank.

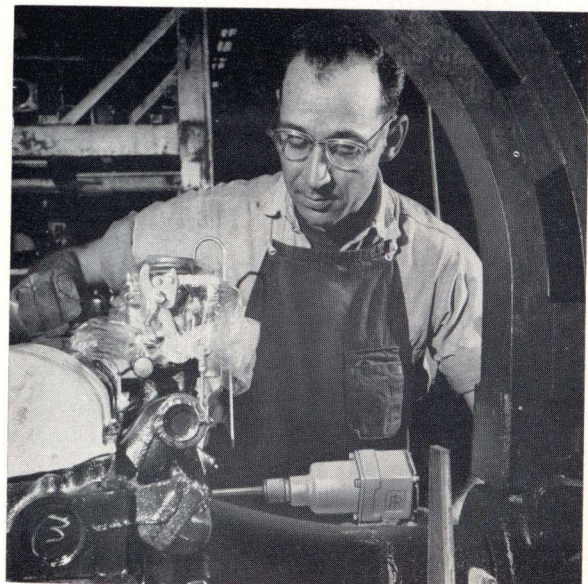
No. 670 Universal Joint.

No. 457 Stud Remover.



Size 8040 Impactool easily tightens guard rail bolts on a conveyor stand.

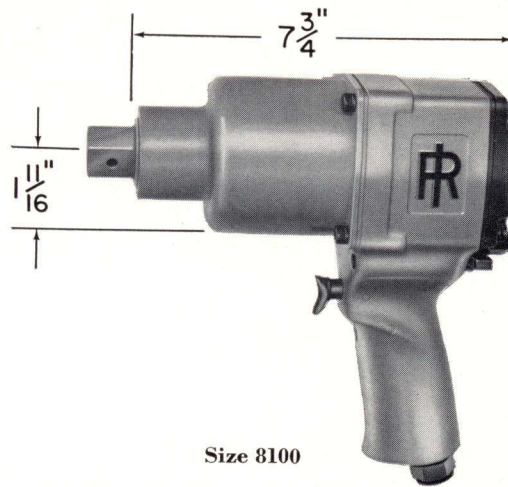
Back of Sheet 10, Section 4



Size 8040 Impactool used to assemble automobile engine to box car rack.

Size 8100 - $\frac{3}{4}$ " (19 mm) Capacity (Std. Duty)

Ingersoll-Rand Impacttools



Size 8100

Size	8100
Capacity, Bolt Size, inches.....	$\frac{3}{4}$ Std. Duty
mm.....	19 Std. Duty
Weight, Less Socket, lbs.....	11
kg.....	4.99
Length Overall, inches.....	$7\frac{3}{4}$
mm.....	197
Side to Center Distance, inches.....	$1\frac{11}{16}$
mm.....	43
Impacts per Minute.....	1000
Speed, rpm.....	4300
Size Square Driver, inches.....	$\frac{3}{4}$
Hose Connection Pipe Tap, inches.....	$\frac{3}{8}$
Size Hose Recommended, inches.....	$\frac{3}{8}$

*Can also be furnished with 1" square driver.

This new $\frac{3}{4}$ " drive Impacttool embodies a new impact-mechanism principle which enables us to utilize a direct drive between the motor and the impact mechanism thus taking full advantage of the inertia of rotating parts for greater torque and faster run-down speed. Its perfect balance and palm-fitting handle reduce operator fatigue. Lightweight, compact and well balanced, this powerful Impacttool offers the ultimate in design and performance. Maintenance costs are kept to a minimum with a new self-contained, pressure-feed lubrication system for the impact mechanism, which assures positive, continuous lubrication without manual greasing.



Size 8100 on structural steel erection.



Standard Equipment	Optional Equipment
No. 465 Air Inlet Bushing ($\frac{3}{8}$ " pipe tap inlet) No. 726 Anvil ($\frac{3}{4}$ " square drive)	No. 826 Anvil (1" square drive), or No. 314-3 3" (76 mm) Extended Anvil ($\frac{3}{4}$ " square drive), or No. 314-6 6" (152 mm) Extended Anvil ($\frac{3}{4}$ " square drive), or No. 314-8 8" (203 mm) Extended Anvil ($\frac{3}{4}$ " square drive), or No. A926-10 Quick Change Anvil (for $\frac{5}{8}$ " hex-shank Socket Drivers)
No. 215- $\frac{3}{4}$ Solid-Type Socket Pin (2) (for $\frac{3}{4}$ " square drive Anvil), and No. 216- $\frac{3}{4}$ Socket Pin Retainer (2)	No. 215A-1 Solid-Type Socket Pin (2) (for 1" square drive Anvil), and No. 216-1 Socket Pin Retainer (2), or No. 215-1 Split-Type Socket Pin (2) (for 1" square drive Anvil)
No. 727 Steel Hammer Case	

Accessories Furnished Only When Specified (At No Extra Cost)

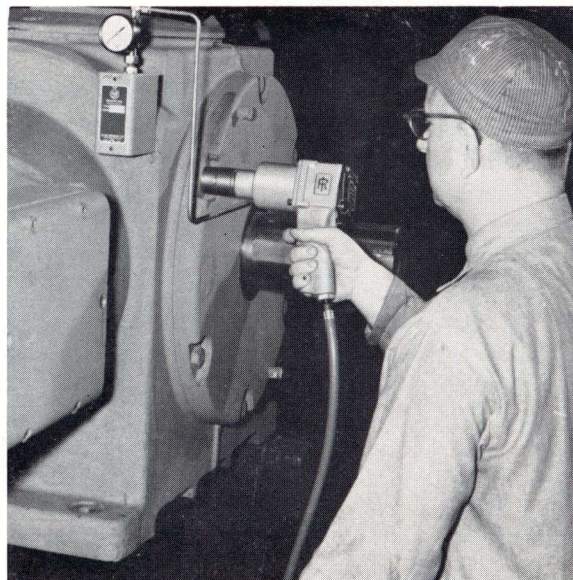
- No. 130 Hose Whip (consists of 8 ft. of $\frac{3}{8}$ " hose complete with fittings)
- No. 228 Grease Gun
- No. 365 Vertical Hanger, or
- No. 366 Horizontal Hanger
- No. 380 Oil Chamber Plug Wrench
- No. 562 Hammer Case Cap Screw Wrench
- No. A925-10 Quick Change Chuck (for $\frac{5}{8}$ " hex-shank Socket Drivers) (for use on $\frac{3}{4}$ " square drive Anvils).

Other Equipment Available (At Extra Cost)

- Hexagon Socket
- Square Socket
- No. 214 Anvil Extensions (specify 6", 9" or 10" length)
- No. 690 Universal Joint ($\frac{3}{4}$ " square driver)
- Socket Drivers with $\frac{5}{8}$ " Hex. Shank and $\frac{1}{2}$ " or $\frac{5}{8}$ " Square Driver



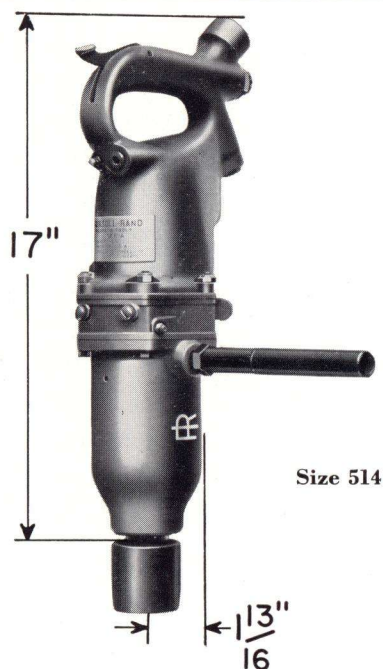
Size 8100 used in disassembly of scrap engines.



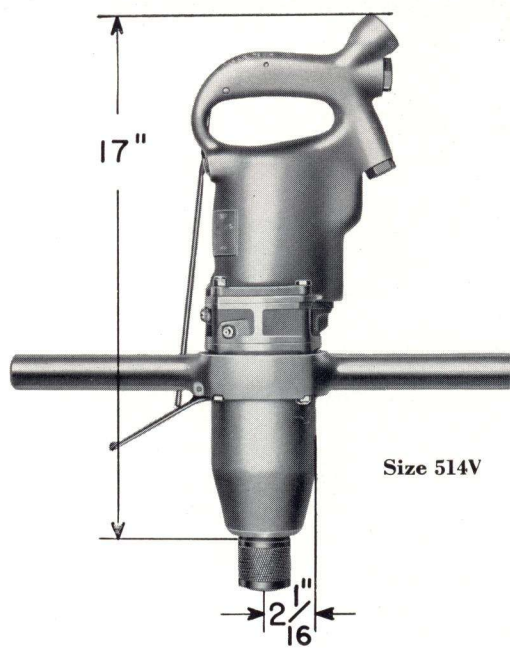
Size 8100 applying cover plate to large horizontal compressor.

Sizes 514 and 514V $\frac{3}{4}$ " (19 mm) Capacity (Heavy Duty)

Ingersoll-Rand Impacttools



Size 514



Size 514V

Size	514	514V
Capacity, Bolt Size, inches.....	$\frac{3}{4}$ -Heavy Duty	$\frac{3}{4}$ -Heavy Duty
mm.....	19 Heavy Duty	19 Heavy Duty
Weight, less Socket, lbs.....	17 $\frac{3}{4}$	18 $\frac{3}{4}$
kg.....	8.05	8.5
Length Overall, inches.....	17	17
mm.....	432	432
Side to Center Distance, inches.....	1 $\frac{13}{16}$	2 $\frac{1}{16}$
mm.....	46	52
Impacts per minute	1690	1690
Speed, rpm.....	915	915
Size Square Driver, inches.....	*1	*1
Hose Connection Pipe Tap, inches.....	$\frac{3}{8}$	$\frac{3}{8}$
Size Hose Recommended, inches.....	$\frac{1}{2}$	$\frac{1}{2}$

*Can be furnished with a $\frac{3}{4}$ " Square Driver.

Sizes 514 and 514V Impacttools are most useful on heavy duty $\frac{3}{4}$ " bolting operations on assembly lines, construction and general maintenance work.

Size 514 has a Grip Handle with Lever Throttle and a Dead Handle which facilitates handling and guiding of the tool. Size 514V is actually the Size 514 with modifications that permit vertical suspension. This model is equipped with a cross handle containing a lever throttle. A small reverse lever on the housing of both tools provides for easy and instant reversing.



Size 514 equipped with 8" extended anvil on Truck Wheel Assembly.



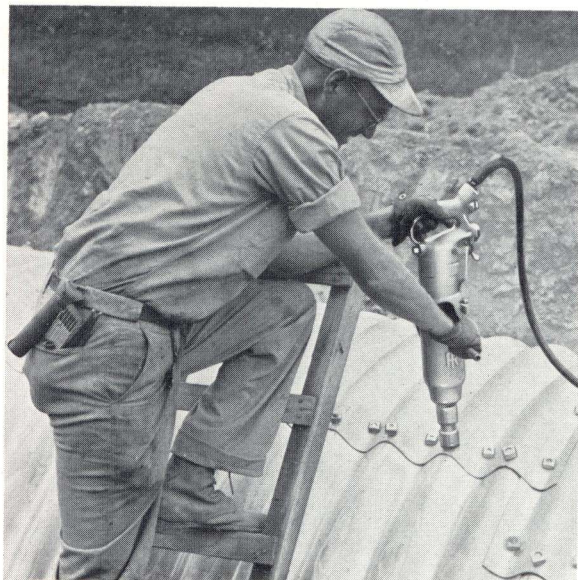
Standard Equipment	Optional Equipment
Grip Handle with Outside Trigger (Size 514 only) Grip Handle and Cross Handle with Throttle Lever (Size 514V only) No. 48 Dead Handle (Size 514 only) No. 215 Socket Pin (2) No. 216 Socket Pin Retainer (2) No. 243 Hammer Case Bolt Nut Wrench No. 726 Anvil (1" Square Drive)	Grip Handle with Inside Trigger (Size 514 only) No. A41 Side Spade Handle (Size 514 only) No. 826 Anvil ($\frac{3}{4}$ " Square Drive, not recommended for general service), or No. 314-3 3" (76 mm) Extended Anvil, or No. 314-6 6" (152 mm) Extended Anvil, or No. 314-8 8" (203 mm) Extended Anvil, or No. 414-3 3" (76 mm) Extended Anvil, or No. 414-6 6" (152 mm) Extended Anvil, or No. 414-8 8" (203 mm) Extended Anvil, or No. A926-10 Quick Change Anvil (for $\frac{5}{8}$ " hex. shank Socket Drivers) No. M727 Malleable Iron Hammer Case
No. 727 Aluminum Hammer Case	

Accessories Furnished Only When Specified

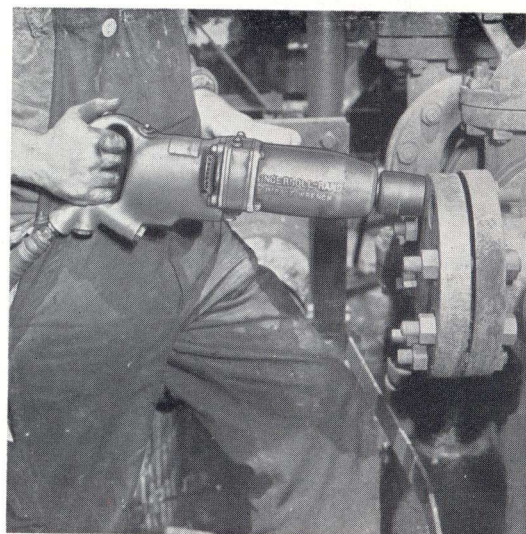
- No. 27 Governor Valve Cap Wrench
- No. 212 Socket Adapter (1" to $\frac{3}{4}$ " Square Drive)
- No. 228 Grease Gun
- No. 366 Horizontal Hanger
- No. 380 Oil Chamber Plug Wrench
- No. A925-10 Quick Change Chuck (for $\frac{5}{8}$ " hex. shank accessories)

Other Equipment Available (At Extra Cost)

- Hexagon Sockets
- Square Sockets
- No. 214 Anvil Extension (specify 6", 9" or 12" length and $\frac{3}{4}$ " or 1" square drive)
- No. 670 Universal Joint (specify $\frac{3}{4}$ " or 1" square drive)
- Socket Drivers with $\frac{5}{8}$ " Hex. Shank and $\frac{1}{2}$ " or $\frac{5}{8}$ " Square Drive



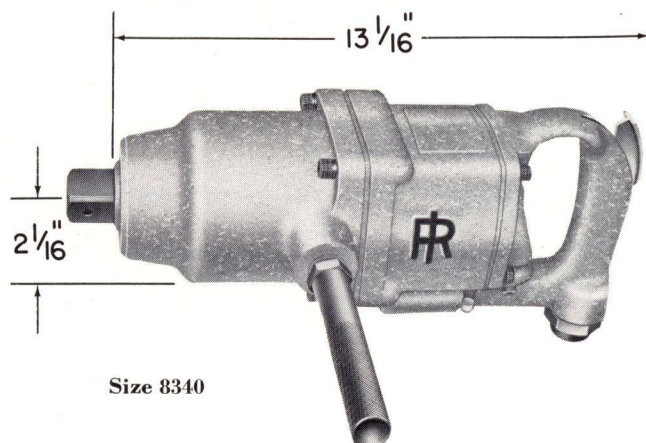
Size 514 running $\frac{3}{4}$ " bolts in assembly of 90° drain pipe.



Size 514 Removing Nuts for Maintenance of Hot Oil Flanges.

Size 8340 and 8340S 1 1/4" (32 mm) Capacity

Ingersoll-Rand Impacttools



Size 8340

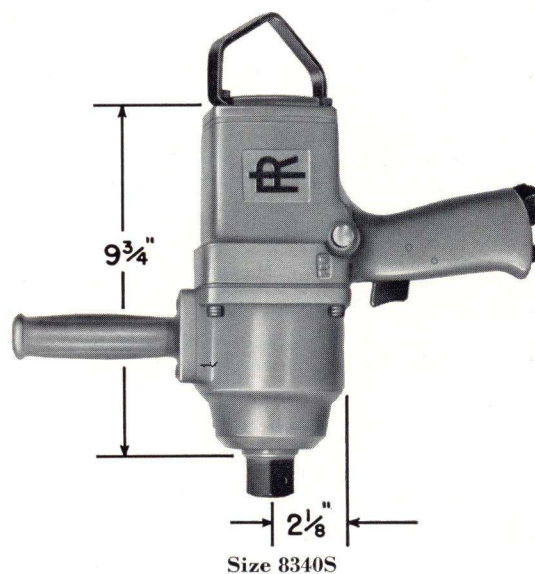
Size	8340	8340S
Capacity, Bolt Size, inches.....	1 1/4	1 1/4
mm.....	32	32
Weight, less Socket, lbs.....	20 3/8	21 1/4
kg.....	9.24	9.64
Length Overall, inches.....	13 1/16	9 3/4
mm.....	332	248
Side to Center Distance, inches.....	2 1/16	2 1/8
mm.....	52	54
Impacts Per Minute.....	800	800
Speed, rpm.....	3500	3500
Size Square Driver, inches.....	*1	*1
Hose Connection Pipe Tap, inches.....	3/8	3/8
Size Hose Recommended, inches.....	† 3/4	† 3/4

*Can also be furnished with 1 1/4" square driver, or a 14 spline, 1 5/8" OD Spline Drive.

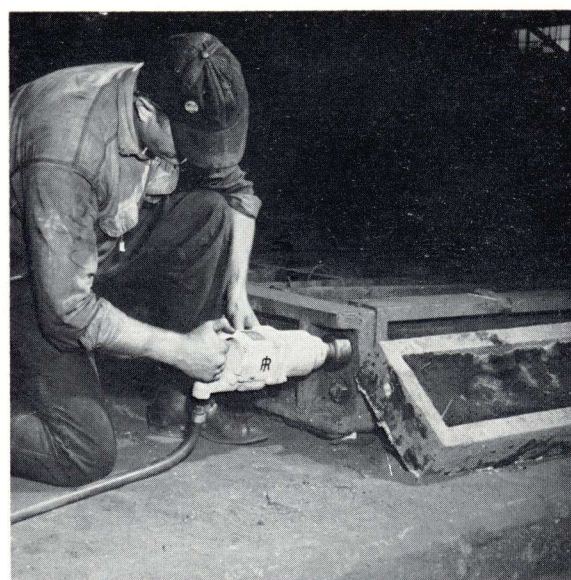
†A whip of 1/2" up to 8 ft. long can be used without seriously affecting performance.

Here is an entirely new concept in Impacttools . . . the all new Size 8340 and 8340S Impacttools. These revolutionary new tools contain no gearing but instead, feature a direct drive between the motor and the Impact mechanism thus taking full advantage of the inertia of the rotating parts for greater torque and faster run-down speed. Only 13 1/16" (332 mm) long these new tools have greater maneuverability in cramped quarters and hard to get at nuts. Despite the bigger, more powerful motor Size 8340 weighs only 20 3/8 lbs. (9.24 kg.) thus giving it a very favorable power to weight ratio. A new self-contained pressure-feed lubrication system for the Impact Mechanism assures positive, continuous lubrication without manual greasing thus keeping maintenance costs to a minimum.

The Size 8340S Impacttool is actually a Size 8340 with modifications that permit vertical suspension. Lightweight, compact and well balanced these new Impacttools exerts tremendous power without any twist or kick to the operator.



Size 8340S



Size 8340 Impacttool replacing broken side pieces on a foundry cope flask.

Standard Equipment

No. 1 Grip Handle with Outside Trigger (Size 8340 only)
 No. 48 Dead Handle (Size 8340 only)
 No. 148 Dead Handle (for Size 8340S only)
 No. 565 Straight Inlet (Size 8340 only)
 No. 726 Anvil (1" square drive)

No. L727 Aluminum Hammer Case (Size 8340 only)
 No. 627 Aluminum Hammer Case (Size 8340S only)
 No. 215A Solid-Type Socket Pin (2) (for 1" square drive Anvil)

No. 216 Socket Pin Retainer (2) (for Solid-Type Socket Pin used with 1" square drive Anvil)

Optional Equipment

No. 92 Grip Handle with Inside Trigger (Size 8340 only)
 No. A41 Side Spade Handle (Size 8340 only)

No. A165 Swivel Inlet Assembly (Size 8340 only)
 No. 314-3 3" (76 mm) Extended Anvil, or
 No. 314-6 6" (152 mm) Extended Anvil, or
 No. 314-8 8" (203 mm) Extended Anvil, or
 No. 526 Spline Drive Anvil (14 Splines; 1 5/8" diameter), or
 No. 826 Anvil (1 1/4" square drive), or
 No. A926-12 Quick Change Anvil (for 3/4" hexagon shank Socket Drivers)
 No. S727 Steel Hammer Case (Size 8340 only)

No. 215 Split-Type Socket Pin (2) (for 1" square drive Anvil) or
 No. 315 Solid-Type Socket Pin (2) (for 1 1/4" square drive Anvil)

No. 316 Socket Pin Retainer (2) (for Solid-Type Socket Pin used with 1 1/4" square drive Anvil)

Accessories Furnished Only When Specified (At No Extra Cost)

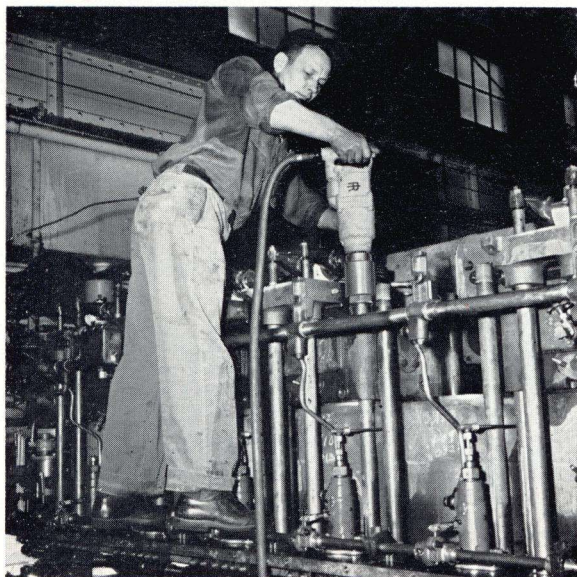
No. 228 Grease Gun
 No. 365 Vertical Hanger (for Size 8340S only)
 No. 366 Horizontal Hanger
 No. 380 Oil Chamber Plug Wrench (for Size 8340S only)
 No. 478 Handle Cap Screw Wrench
 No. 562 Hammer Case Cap Screw Wrench
 No. 579 Swivel Inlet Body Wrench (for Size 8340 equipped with Swivel Inlet)
 No. A925-10 Quick Change Chuck (for 5/8" hexagon shank socket drivers)

Other Equipment Available (At Extra Cost)

Spline Drive Sockets (Hexagon or Square)
 Hexagon Sockets
 Square Sockets
 No. 112-1 Socket Adapter (spline drive to 1" square drive)
 No. 114-7 7" Splined Anvil Extension
 No. 212 Socket Adapter (1" to 3/4" square drive)
 No. 214 Anvil Extensions (Specify either 6", 9" or 12" lengths)
 No. 670 Universal Joint
 Socket Drivers with 3/4" Hex. Shank and Square Drive



Size 8340 Impacttool with optional Inside Trigger Handle, Swivel Inlet, Side Spade Handle and Spline Drive Anvil.



Size 8340 running nuts on the cylinder head studs of a large diesel.



Size 8340S without suspension bail.

Size 8440- 1 1/2" (38 mm) Capacity

Ingersoll-Rand Impacttools

SPECIFICATIONS

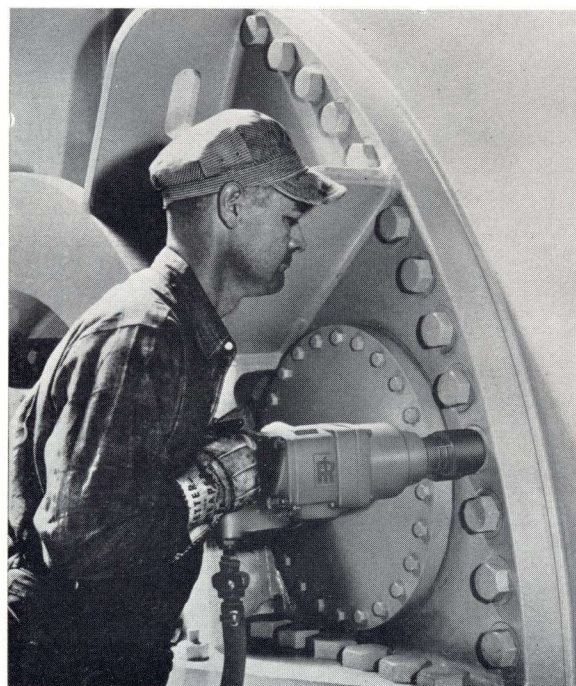
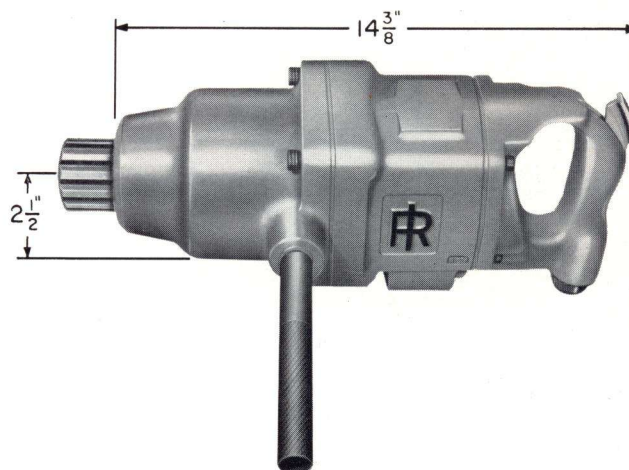
Size	8440
Capacity, Bolt Size, inches.....	1 1/2
mm.....	38
Weight, less Socket, lbs.....	33
kg.....	14.97
Length Overall, inches.....	14 3/8
mm.....	365
Side to Center Distance, inches.....	2 1/2
mm.....	64
Impacts Per Minute.....	700
Free Speed, rpm.....	3500
Size Square Driver, inches.....	*
Hose Connection, Pipe Tap, inches.....	3/8
Size Hose Recommended, inches.....	† 3/4

*Size 8440 is equipped with a 14 spline, 1 5/8 OD Spline Drive Anvil as standard equipment.

An 1 1/4" square drive Anvil is available as optional equipment.

†A whip of 1/2" hose up to 8 ft. long can be used without seriously affecting performance.

Here is the most powerful, hand-held Impacttool on the market today. Size 8440 contains no gearing but instead, features a direct drive between the motor and the Impact Mechanism. This type drive takes full advantage of the inertia of the rotating parts for greater torque and faster run-down speed. Size 8440 is 20% more powerful, 75% faster and 1 3/8" (35 mm) shorter than competitive tools. This compact power package will increase your production and at the same time reduce operator fatigue. Maintenance costs are kept to a minimum with a new self-contained, pressure-feed lubrication system for the Impact Mechanism which assures positive, continuous lubrication without manual greasing.



Size 8440 tightening 1 1/2" cap screws on 150,000 KW generator.



Standard Equipment

No. 1 Outside Trigger Handle
No. 48 Dead Handle
No. 565 Straight Inlet
No. 526 Spline Drive Anvil with
Built-in Socket Retainer

No. 727 Aluminum Hammer Case, with
No. 641 Hammer Case Bushing

Optional Equipment

No. 92 Inside Trigger Handle
No. A41 Side Spade Handle Assembly
No. A165 Swivel Inlet Assembly
No. 726 Anvil (1 1/4" square drive) with
No. 315 Socket Pin (2), and
No. 316 Socket Pin Retainer (2), or
*No. 826 Anvil (1 1/2" square drive)
No. S727 Steel Hammer Case, with
No. 641 Hammer Case Bushing, or
*No. S627 Steel Hammer Case, with
*No. 541 Hammer Case Bushing

The No. S627 Steel Hammer Case and No. 541 Hammer Case Bushing can be used only with the No. 826 Anvil.

ACCESSORIES (furnished when specified at no extra cost)

No. 27 Hammer Case Cap Screw Wrench
No. 228 Grease Gun
No. 366 Horizontal Hanger
No. 380 Oil Chamber Plug Wrench
No. 562 Handle Cap Screw Wrench
No. 579 Swivel Inlet Body Wrench (for tools equipped with Swivel Inlet Assembly)

Other Equipment Available (At Extra Cost)

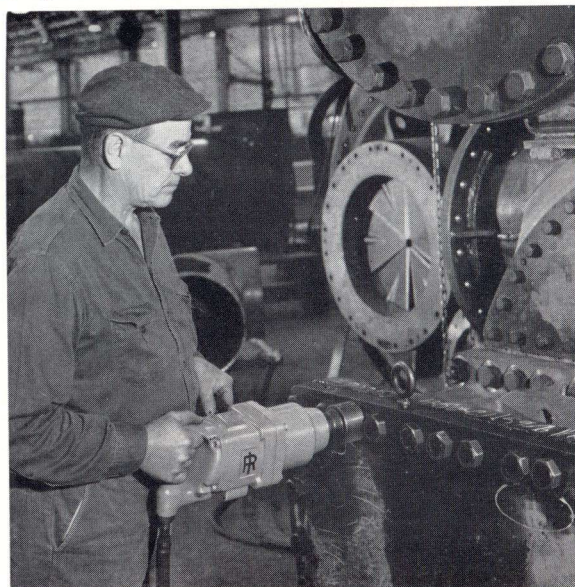
Spline Drive Sockets (Hexagon or Square)
Hexagon Sockets
Square Sockets
No. 112-1 Socket Adapter (spline to 1" square drive)
No. 112-1 1/2 Socket Adapter (spline to 1 1/2" square drive)
No. 114-7 7" Splined Anvil Extension
No. 212 Socket Adapter (1" to 3/4" square drive)
No. 214 Anvil Extensions (Specify either 6", 9" or 12" lengths)
No. 670 Universal Joint
No. 770 Splined Universal Joint



Size 8440 Impacttool with Optional Inside Trigger Handle, Side Spade Handle Swivel Inlet and 1 1/4" Square Drive.



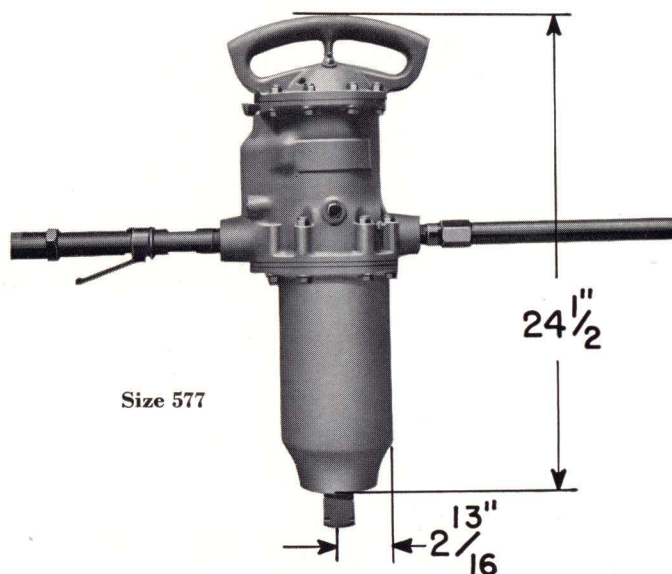
Size 8440 tightening nuts on the head of an ultra-former.



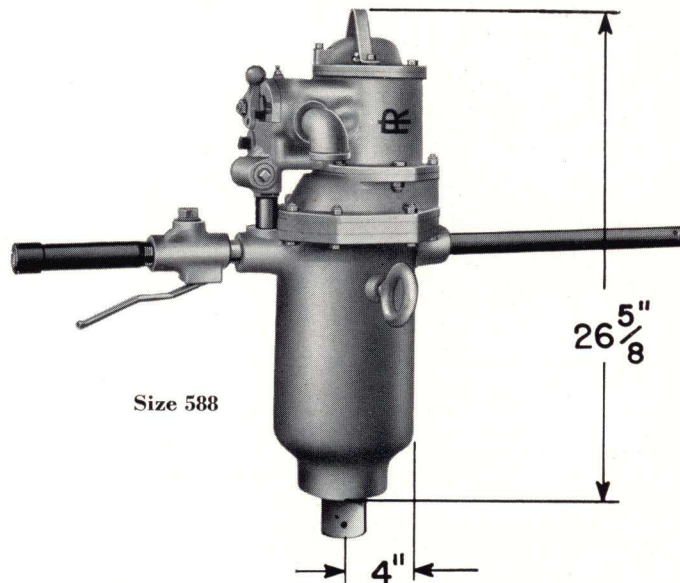
Size 8440 tightening 1 1/4" cover bolts on a refrigeration unit.

Size 577 - 2" (51 mm) Capacity
Size 588 - 4" (102 mm) Capacity

Ingersoll-Rand
Impacttools



Size 577



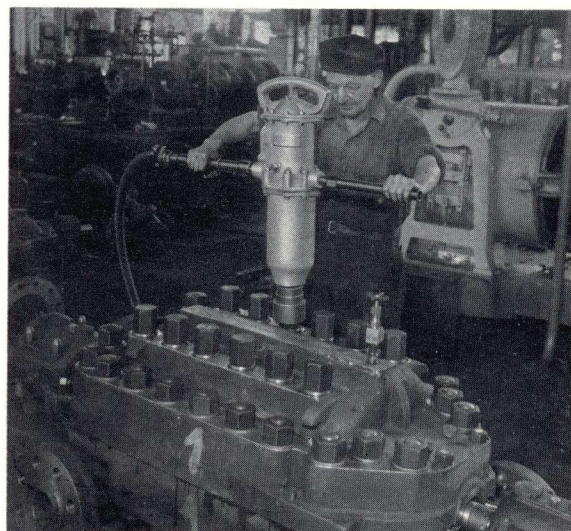
Size 588

Size	577	588
Capacity, Bolt Size, inches.....	2	4
mm.....	51	102
Weight, Less Socket, pounds.....	84 1/4	215
kg.....	38.22	97.52
Length Overall, inches.....	24 1/2	26 5/8
mm.....	622	676
Side to Center Distance, inches.....	2 13/16	4
mm.....	71	102
Impacts Per Minute.....	1000	550
Speed, rpm.....	550	355
Size Square Driver, inches.....	1 1/2	2 1/2
Hose Connection Pipe Tap, inches.....	3/4	1
Size Hose Recommended, inches.....	*1	1

*A whip of 3/4" hose up to 12 ft. long can be used without seriously affecting performance.

For extra-heavy nut running jobs now done by slow and laborious hand wrench methods Ingersoll-Rand offers the Size 577 and the Size 588 Impacttools. Costly sledging, burning and battering of frozen nuts are entirely eliminated with the use of these two sturdy tools. They will remove and tighten nuts larger than their rated capacity on many applications.

These two Impacttools are indispensable for production and maintenance jobs in shipyards, steel mills, chemical plants, locomotive shops, oil refineries, cement plants, power houses, as well as in plants manufacturing heavy machinery, large diesel engines, turbo-generators, etc.



Size 577 on Large Pump Assembly.



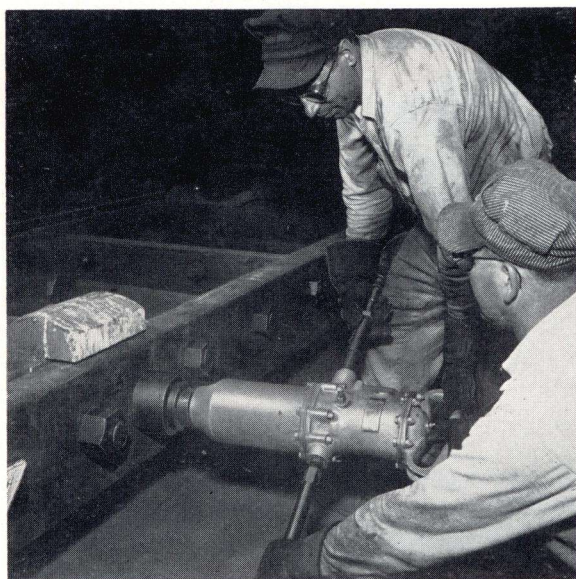
Size	Standard Equipment	Optional Equipment
577	No. 48 Dead Handle No. 215 Socket Pin (2) No. 216 Socket Pin Retainer (2) No. AL401 Self-Closing Lever Throttle No. D727 Ductile Iron Hammer Case	No. A417 Self-Closing Roll Throttle No. 727 Magnesium Hammer Case
588	No. 4 Eye Bolt (2) (for horizontal suspension) No. 48 Dead Handle No. 215 Socket Pin (2) No. 216 Socket Pin Retainer (2) No. A160 Self-Closing Lever Throttle No. 365 Vertical Hanger (for vertical suspension) No. 727 Malleable Iron Hammer Case	

Accessories Furnished Only When Specified

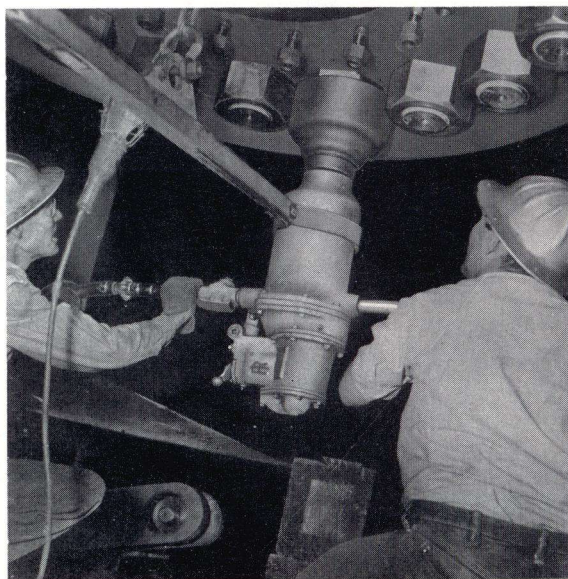
No. 228 Grease Gun
No. 243 Wrench (for Size 577)

Other Equipment Available (At Extra Cost)

Hexagon Sockets
Square Sockets
No. 212 Superheater Extension Adapter (1½" to 1" Square drive - 15" or 22" long as specified)
No. 214 Anvil Extension (1½" Square drive; 6", 9", 12" lengths) (for Size 577)
No. 214 Anvil Extension (2½" Square drive; 6", 8", 12", 18" or 24" as specified) (for Size 588)
No. 670 Universal Joint (for Size 577)



Size 577 on Steel Mill Maintenance.



Size 588 on a Power Station Repair Job.

CASE HISTORIES

Size 577 Pays For Itself in 1½ Hours

On a phosphate furnace in a chemical plant, 2 electrode clamp bolts must be loosened, the electrode "slipped", and the bolts tightened 6 times every 24 hours. Formerly the job took three or four men 12 minutes. When the Size 577 Impacttool was installed, one man could do the job in 3 minutes time. Down time and labor-savings enabled the tool to pay for itself in 30 days, or in 1½ hours actual operation!

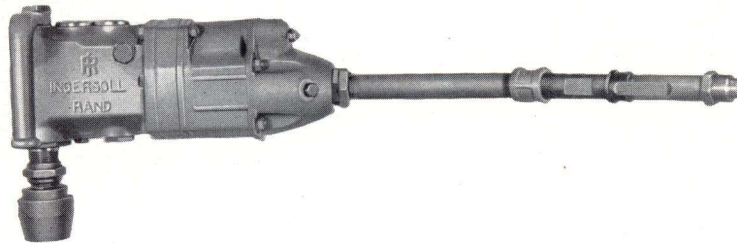
Down Time Reduced—Thousands of \$ Saved

A steel mill maintenance job on a 160" shear involved running four 7" plunger stud nuts. It formerly required scaffolding and four men five hours, or 20 man-hours to do the job.

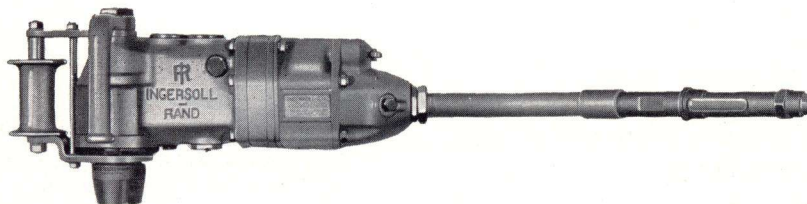
Now the Size 588 Impacttool is hoisted to the nuts and two men (without scaffolding) require 15 minutes to do the job - or ½ man hour. Down time in the mill was the most costly part of this operation. With the use of the Size 588 down time was reduced from 5 hours to 15 minutes.

Track Wrenches, Rail Drill and Screw Spike Setter

Ingersoll-Rand Track Wrenches



Size RT44 Lightweight Track Wrench.



Size R44E Track Wrench.

Ingersoll-Rand Track Wrenches are air tools for running track bolts in railroad repair work or the laying of new rail. They are made in two sizes, R44E and RT44. Both are powered by "Multi-Vane" air motors.

Size R44E Track Wrench is a reversible machine recommended for tightening and removing all sizes of track bolt nuts. This tool is equipped with a $1\frac{3}{8}$ " square end spindle for taking snap-type sockets. Speed is 105 r.p.m.

Standard equipment includes one snap-type Hex. Socket or Square Socket, size as specified. When

ordering sockets, give the distance, across the flats of the nut it is to fit.

Size RT44 is a lighter, faster Track Wrench than the R44E and with less torque. It is recommended for tightening nuts on track bolts up to $\frac{7}{8}$ -inch diameter. Tool comes equipped with a handle grip and a curved throttle extension. Speed is 180 r.p.m.

Standard equipment includes one Socket Adapter with Chuck Nut and one snap-type Hex. Socket or Square Socket, size and shape as specified.

Socket Adapters and Sockets

The No. 212 Socket Adapter fits the No. 4 Morse Taper Socket in the Size RT44 Track Wrench Spindle, in which it is held by the No. 347 Chuck Nut. It will take all sizes of Square or Hex Sockets with $1\frac{3}{8}$ " square drive holes.

The No. 214 Socket Adapter has a No. 4 Morse Taper to a 1" square drive. It can be used with the Size RT44 with standard Impactool Sockets having 1" square drive holes.

Hexagon or Square Sockets will fit on the $1\frac{3}{8}$ " square end of the Size R44E Track Wrench Spindle or on the $1\frac{3}{8}$ " square end of the No. 212 Socket Adapter used with the Size RT44 Track Wrench.

These Sockets are stocked in sizes to fit square or hex nuts $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{5}{8}$ " and $1\frac{5}{16}$ " across the flats, but can be furnished to fit all standard track bolt nuts.

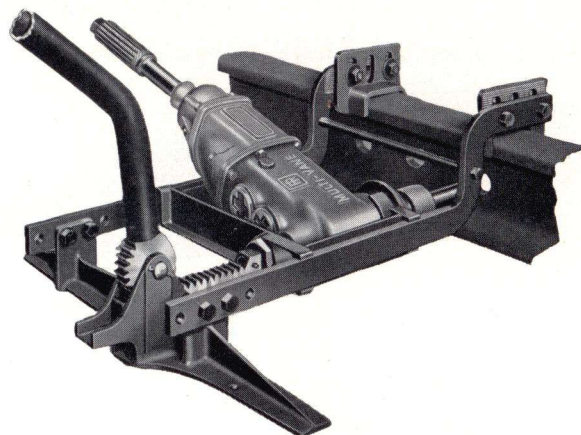


The Size RD40 Rail Drill is a non-reversible "Multi-Vane" Drill mounted in a frame known as an "Old Man", and used for drilling splice-plate holes in rails.

The Spindle of this Drill is built to take the Rail Drill Chuck which will handle flat-beaded rail drills from $1\frac{1}{16}$ " (17 mm) to $1\frac{3}{16}$ " (30 mm) diameter. The tool weighs 101 pounds (45.81 kg.) and has a free speed of 180 r.p.m.

Rail Drill Chucks, No. 392, are threaded $1\frac{1}{16}$ " - 12 thread to fit the spindle of the Size RD40 Rail Drill. They are fitted with grooved jaws to take $6\frac{1}{4}$ " (159 mm) length flat beaded drills from $1\frac{1}{16}$ " (17 mm) to $1\frac{3}{16}$ " (30 mm) diameter. The following sizes are carried in stock: $\frac{7}{8}$ " (22 mm), 1" (25 mm), $1\frac{1}{8}$ " (29 mm) and $1\frac{3}{16}$ " (30 mm).

Chucks for $\frac{3}{4}$ " (19 mm) drills can be obtained upon order.



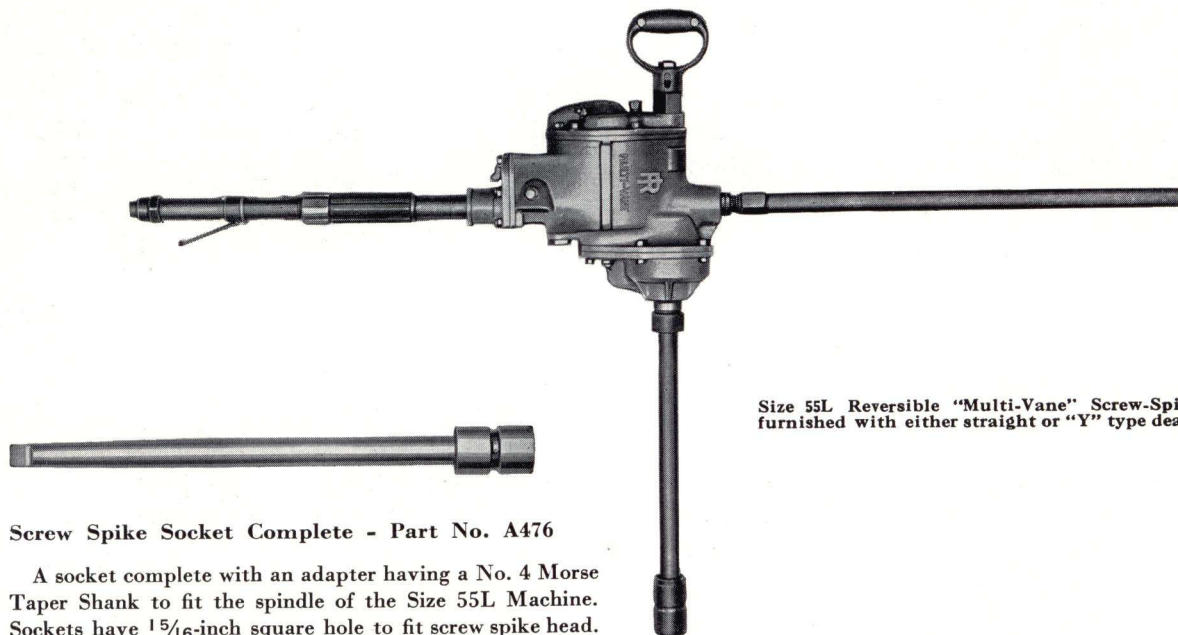
Size RD40 Rail Drill

Size 55L Screw Spike Setter is a two-man machine for running down or removing screw-type spikes in railway maintenance of way.

This powerful tool will put down screw spikes quickly and tightly at a great saving over hand methods.

It is powered by an efficient, reversible "Multi-Vane" motor, dependable in performance and smooth in operation.

With standard equipment, the Size 55L Screw Spike Setter weighs $63\frac{1}{2}$ pounds (28.8 kg.). It has an average working speed of 200 r.p.m. at 90 pounds air pressure (6.33 kg. per sq. cm.).



Size 55L Reversible "Multi-Vane" Screw-Spike Setter furnished with either straight or "Y" type dead handle.

Screw Spike Socket Complete - Part No. A476

A socket complete with an adapter having a No. 4 Morse Taper Shank to fit the spindle of the Size 55L Machine. Sockets have $1\frac{5}{16}$ -inch square hole to fit screw spike head. Order separate Sockets under Part No. 476 and separate adapters under Part No. 477.

Size	Weight		Length Overall		Height Over Chuck		Speed, r.p.m. at 90 pounds (6.33 kg/sq cm) Air Pressure	Morse Taper Socket	Side to Center		Hose Connection Pipe Tap, Inches	Size Hose Recommended, Inches
	lbs.	kg.	ins.	mm	ins.	mm			ins.	mm		
RT44	54	24.49	41½	1054	12⅞	308	180	4	19⅙	40	½	¾
R44E	65	29.48	46½	1181	10⅝	270	105	-	2⅜	60	½	¾
RD40	101	45.81	...	...	*30¾	781	180	-	...	...	¾	¾
55L	63½	28.80	35	889	16⅜	424	200	4	29⅙	65	¾	1

*Includes Old Man Attachment.

Utility Air Hoists Single-Drum

Ingersoll-Rand Air Hoists

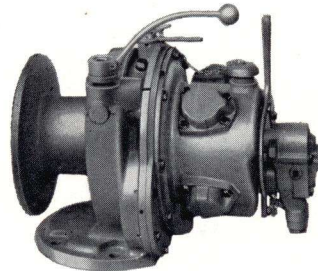
Single-Drum "Utility" Hoists are light, compact, portable air hoists, designed particularly for high efficiency and low air consumption. They can be employed in places where the limited supply of air available would otherwise prevent the use of pneumatic hoists. They are adaptable to "wall" or "ceiling" mounting as well as the conventional "floor" mounting and therefore will handle a wide range of work.

"Utility" Hoists are widely used with portable compressors, on which they are often mounted and moved from one job to another without the necessity of special handling.

On all classes of work there are countless lifting, hoisting, and dragging jobs which have to be done by hand or which require special rigging. These are the jobs for which "Utility" Hoists have been designed.



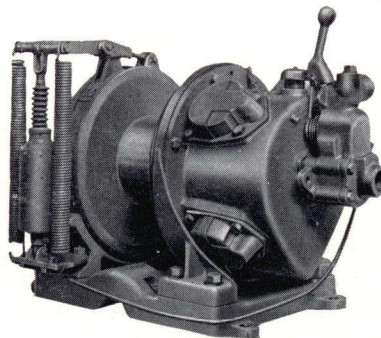
Size BU



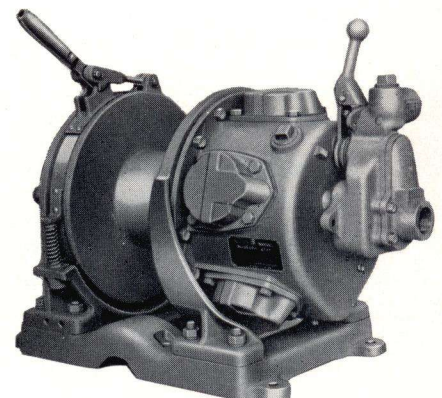
Size D6U



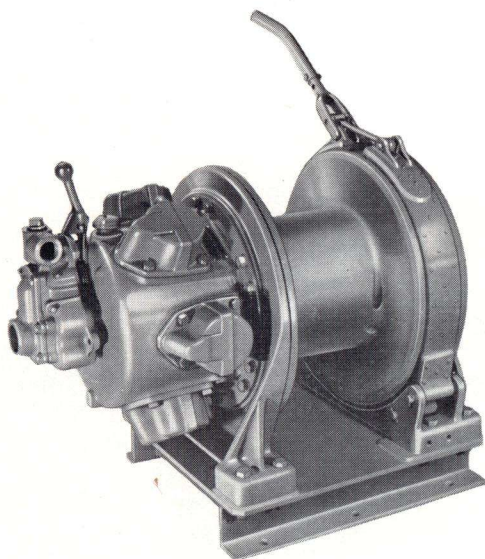
Size DU with Winch Head



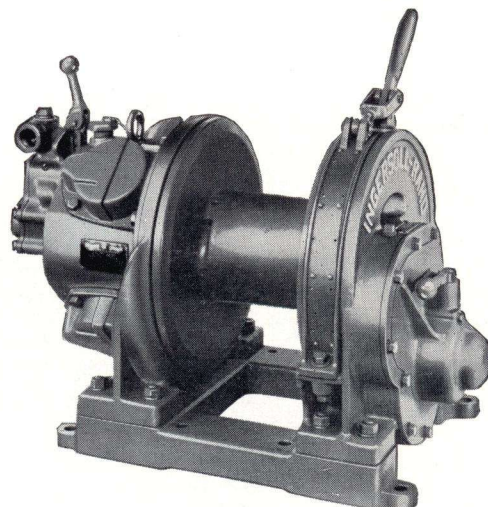
Size HU with Automatic Brake



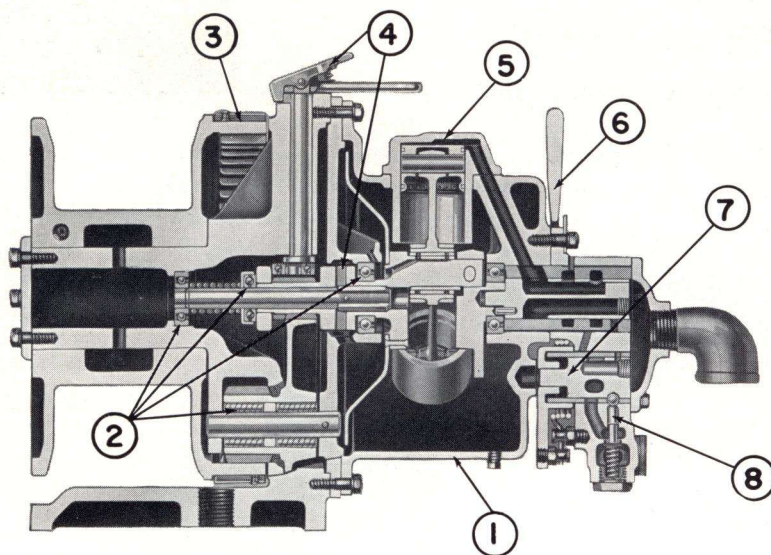
Size H5U (has five cylinder motor)



Size K6U



Size K4U

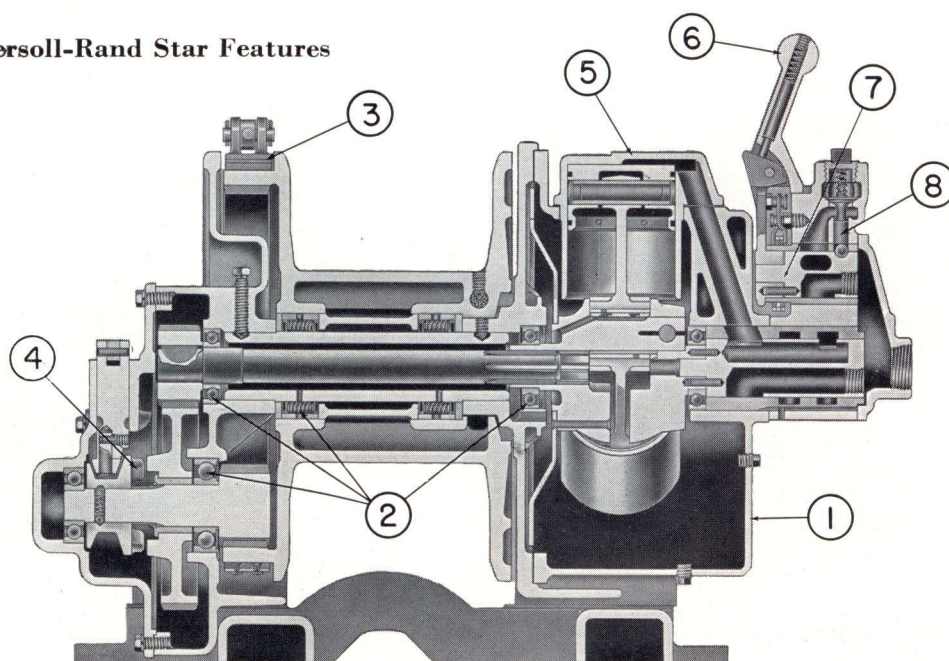


Sectional View
of Size DU

Features

1. Enclosed construction excludes dirt and dust, seals in oil and grease assuring complete lubrication of all moving parts.
2. Friction is reduced and power conserved by extensive use of ball or roller bearings.
3. A band-type brake provides safe handling of the load at all times.
4. A positive jaw-type Clutch permits free wheeling of the rope drum for unwinding the wire rope by hand. A sturdy latch secures the clutch in either the engaged or disengaged position.
5. A rugged, piston-type, radial air motor provides the power for the Single Drum Hoist.
- ★ 6. An easily operated safety-type throttle is designed to give well graduated control and will shut off automatically when released.
- ★ 7. All Hoists have reversible motors permitting full control of the suspended load by the throttle.
- ★ 8. A poppet-type valve eliminates air leakage when the hoist is idle.
9. Low air consumption and trouble free service assure maximum economy.

★ Exclusive Ingersoll-Rand Star Features



Sectional View
of Size HU

Utility Air Hoists

Specifications and Equipment

Ingersoll-Rand

Air Hoists

SPECIFICATIONS

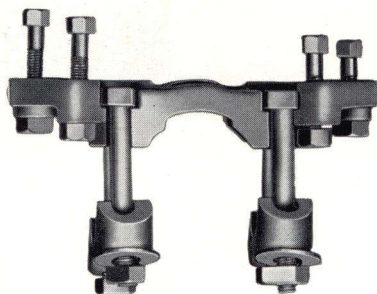
Size	Rated Capacity		Lifting Speed		Weight		Air Inlet Pipe Tap, inches	Size Hose Recommended, inches
	lbs.	kg.	ft./min.	meters/min.	lbs.	kg.		
BUA	120	54	250	62.93	75	34.02	1/2	3/4
BU	750	340	40	12.19	75	34.02	1/2	3/4
DU	750	340	75	22.86	275	124.74	3/4	3/4
D6U	1000	454	75	22.86	275	124.74	3/4	3/4
D6UL	1000	454	75	22.86	405	183.70	3/4	3/4
EUA	1250	567	100	30.48	310	140.61	3/4	1
EUAL	1250	567	100	30.48	440	199.58	3/4	1
HUA	1350	612	175	53.34	490	222.26	1	1 1/4
HUAL	1350	612	175	53.34	562	254.92	1	1 1/4
HUB	1650	748	150	45.72	490	222.26	1	1 1/4
HUBL	1650	748	150	45.72	562	254.92	1	1 1/4
EU	2000	907	54	16.46	310	140.61	3/4	1
EUL	2000	907	54	16.46	440	199.58	3/4	1
HU	2000	907	124	37.80	490	222.26	1	1 1/4
HUL	2000	907	124	37.80	562	254.92	1	1 1/4
KUA	2000	907	175	53.34	615	278.96	1 1/4	1 1/2
KUAL	2000	907	175	53.34	685	310.71	1 1/4	1 1/2
H5U	3000	1361	100	30.48	525	238.14	1 1/4	1 1/2
H5UL	3000	1361	100	30.48	598	271.25	1 1/4	1 1/2
K4U	3500	1588	95	28.95	850	385.55	1 1/4	1 1/2
K4UL	3500	1588	95	28.95	940	426.38	1 1/4	1 1/2
HU40	4000	1814	60	18.29	525	238.14	1	1 1/4
HUL40	4000	1814	60	18.29	600	272.20	1	1 1/4
K6UA	5000	2268	95	28.95	1315	596.47	1 1/4	1 1/2
K6UAL	5000	2268	95	28.95	1550	703.08	1 1/4	1 1/2
K6U	7000	3175	65	19.81	1315	595.47	1 1/4	1 1/2
K6UL	7000	3175	65	19.81	1550	703.08	1 1/4	1 1/2

Diameter of Wire Rope inches	Maximum Load for Wire Rope, pounds	Rope Drum Capacity, Feet											
		BU and BUA	DU, D6U, EU and EUA with Standard Drum	DU, D6U and EUA with No. 688 Extra Capacity Drum	D6UL, EUL and EUAL	HU, HUA, HUB, H5U, KU and KUA	HUL, HUAL, HUBL, H5UL, KUL and KUAL	HU40	HUL40	K4U	K4UL	K6U and K6UA	K6UL and K6UAL
3/16	600	350											
1/4	1000	190											
5/16	1600	110	290	475	775	800	1675						
3/8	2300		190	360	500	580	1200						
7/16	3100		140	230	380	400	850						
1/2	4000		100	170	275	320	670	300	650	550	1100		
9/16	5000					250	525	240	500	420	840		
5/8	6200					200	410	180	400	350	700	600	1200
3/4	8800											420	840

■ The maximum load ratings listed are approximately 3/14 of the breaking strength of 6 x 19 regular plow steel **fibre core** rope, and 3/16 of the breaking strength of 6 x 19 improved plow steel **fibre core** rope. Improved plow steel is regularly furnished by Ingersoll-Rand. We do not recommend the use of any wire rope which has a lower maximum load rating than the rated capacity of the Hoist, except when that Hoist is being used to handle reduced loads that do not exceed the Maximum Load Rating of the rope.



No. 674 Exhaust Muffler



No. A621 Column Mounting



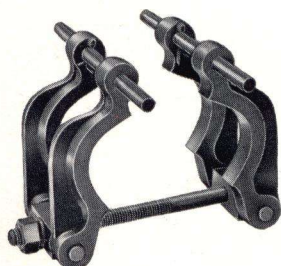
No. A267 Air Strainer



No. 606 Winch Head



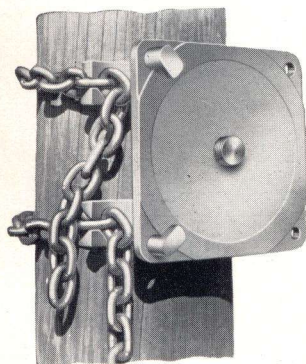
No. A619 Column
Clamp Cone



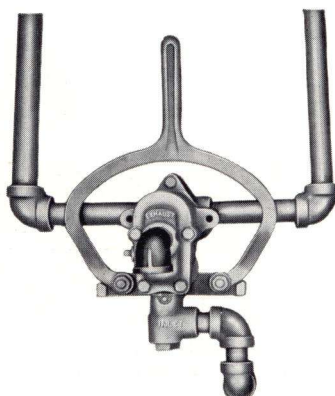
No. A657 Column Mounting
(for BU and BUA only)



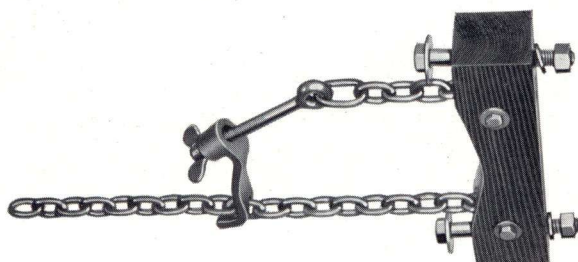
No. A657 Column Mounting
(Not for BU and BUA)



No. A622 Pole Mounting



No. A685 Remote Control Block



No. A622 Pole Mounting Complete
(For Size BU and BUA)

SIZE	Furnished When Specified At No Extra Cost
All Sizes	No. A267 Air Strainer No. 426 Wire Rope Set Screw Wrench
BU, BUA	One No. 201 Set Screw Wrench ($\frac{5}{16}$ " (3.97 mm) hex). One No. 330 Cap Screw Wrench ($\frac{7}{16}$ " (5.55 mm) hex). One No. 331 Base Cap Screw Wrench ($\frac{3}{8}$ " (9.52 mm) hex).
BU, BUA, HU, HUA, HUB, KUA, H5U	No. A657 Column Clamp Complete with Bolts, Nuts and Washers for fastening Hoist to a Rock Drill Column, $3\frac{1}{2}$ " (88.9 mm), 4" (101.6 mm), or $4\frac{1}{2}$ " (114.3 mm) in diameter. (One for BU and BUA; two for all others). No. 228 Grease Gun (not for Size BU)
DU, D6U, EU, EUA	No. 606 Winch Head for using Manila Rope (furnished in place of standard drum) No. A621 Column Mounting Complete for Rock Drill Column $3\frac{1}{2}$ " (88.9 mm), 4" (101.6 mm) and $4\frac{1}{2}$ " (114.3 mm) diameters.
BU, BUA, DU, D6U	No. A619 Column Clamp Cone Complete for fastening Hoist to Rock Drill Column.
K6U and K6UA	No. 228 Grease Gun

SIZE	Equipment Furnished At Extra Cost
All Sizes	Wire Rope and Rope Fittings, Hose, Hose Connections
BU and BUA	No. A463 Hook Block Assembly No. A601 Swivel Hook Assembly No. A622 Pole Mounting Assembly
All Sizes except BU, BUA, HU40 and HUL40	No. 674 Exhaust Muffler No. A685 Remote Control Block No. A686 Remote Control Valve Chest Automatic Brake
All Sizes except BU, H5U, H5UL, K6U and K6UA	*Equipment for Steam Operation: No. A900 Lubricator Complete No. A913 Drain Complete No. 916 Sight Feed Lubricator
DU, D6U, EUA	No. 688 Extra Capacity Drum (Will handle 600 feet (189.2 meters) of $\frac{3}{16}$ " (7.93 mm) Wire Rope

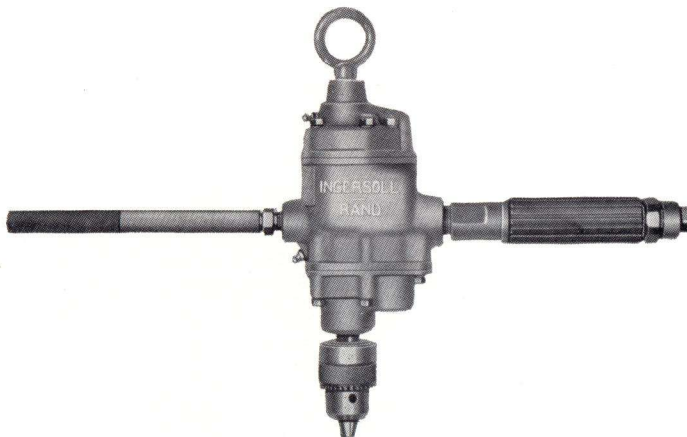
*Steam operation is not recommended. Customer must accept full responsibility for performance when Hoist is operated by steam.

Series 2X and 22

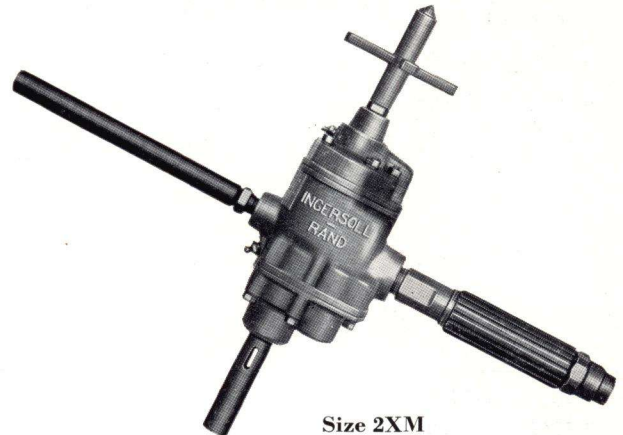
$\frac{3}{8}$ (10 mm) to $\frac{7}{8}$ (22 mm) Capacities

Ingersoll-Rand Drills

Series 2X and 22 Drills are available in fourteen sizes, with speeds ranging from 230 r. p. m. to 1500 r.p.m. (at 90 p.s.i. (6.3 kg/sq. cm) air pressure). With the use of standard equipment these drills can be adapted to any type of work falling within their capacities.



Size 2XK



Size 2XM



Size 22J



Size 2XM with hole saw taking test plugs from welded sections.



Size 22N rolling $1\frac{1}{2}$ " (38 mm) steel tubes in heat exchanger.

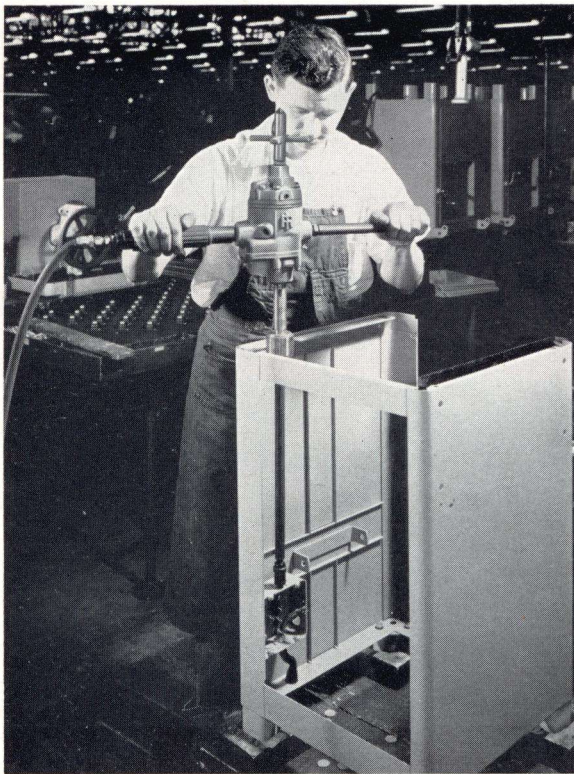


SPECIFICATIONS

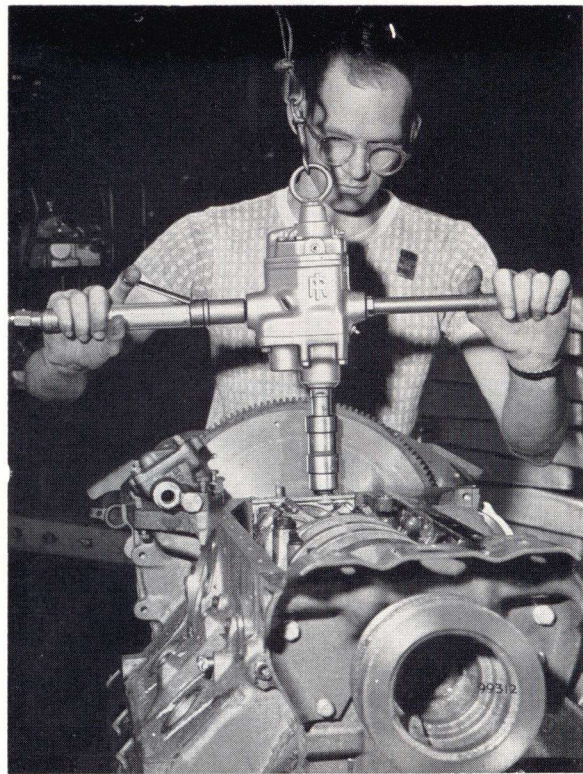
Size	Speed 90 Lbs. Pressure, (6.33 kg/ sq cm) rpm	Weight		Length of Feed		Twist Drill Capacity		Reaming Capacity		Tapping Capacity		Size Thread on Spindle, Inches	Morse Taper Socket	Length Overall		Hose Con- nec- tion, Pipe Tap, Inches	Size Hose Recom- mended, Inches	Distance from Side to Center of Spindle			
		lbs.	kg.	Inches	mm	ins.	mm	ins.	mm	ins.	mm			inches	mm			inches	mm		
NON- REVERSIBLE																					
2XH	1500	14	6.35	2½	64	⅜	10	¼	6	..	..	.703"-16	1 or 2	15	381	⅜	½	1⅞	37	
2XJ	1025	14	6.35			⅜	14	⅜	10	⅜	10703"-16	1 or 2					15	381
2XK	725	14¼	6.46			⅜	14	⅜	11	⅞	11703"-16	1 or 2					16¼	413
2XL	500	13¾	6.24			⅜	14	½	13	½	13703"-16	1 or 2					17¼	438
2XM	350	13¾	6.24			⅜	22	⅜	16	⅜	16703"-16	1 or 2					17¼	438
2XN	280	16	7.26			⅜	22	⅜	16	⅜	16	■	■	1, 2 or 3	19					483	
2XP	230	16	7.26	⅜	22	⅜	16	⅜	16	■	■	1, 2 or 3	19	483							
REVERSIBLE																					
22H	1500	15	6.80	2½	64	⅜	10	¼	6	..	..	..	1 or 2	16⅜	416	⅜	½	1⅞	37	
22J	1025	15	6.80			⅜	14	⅜	10	⅜	10	..	..	1 or 2	16⅜					416
22K	725	15¼	6.92			⅜	14	⅞	11	⅞	11	..	..	1 or 2	17⅝					448
22L	500	14¼	6.46			⅜	14	½	13	½	13	..	..	1, 2 or 3	18⅝					473
22M	350	14¼	6.46			⅜	22	⅜	16	⅜	16	..	..	1, 2 or 3	18⅝					473
*22N	280	16½	7.48			⅜	22	⅜	16	⅜	16	..	..	1 or 2	20⅜					518
*22P	230	16½	7.48	⅜	22	⅜	16	⅜	16	..	..	1 or 2	20⅜	518						

*Sizes 22N and 22P are also suited for light Tube Rolling.

■ 3/8" Square Drive is standard, Morse Taper Socket is optional.



Size 2XM Drill with extension and hole saw attachment used to cut 3/8" (22 mm) hole in cabinet base.



Size 2XK with stud driver running studs in oil pan on V-8 engine.

Series 3, 33, 4, 44, 5 and 55

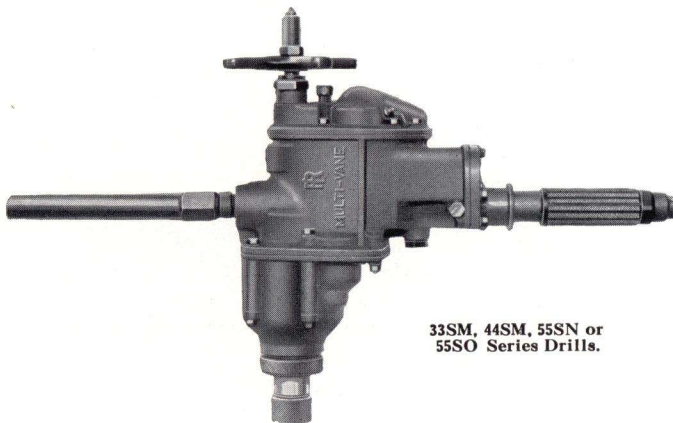
29/32" (23 mm) to 3" (76 mm) capacities

Ingersoll-Rand Drills

MULTI-VANE Drills are preferred for production work because they have the absolute smoothness of operation that is so necessary for accurate drilling, reaming, tapping, etc. At the same time, they possess the lugging power to keep them up to speed when under a load. They are light in weight and easy to handle. Their power and efficiency make them ideal tools for many jobs that formerly required larger and heavier machines.

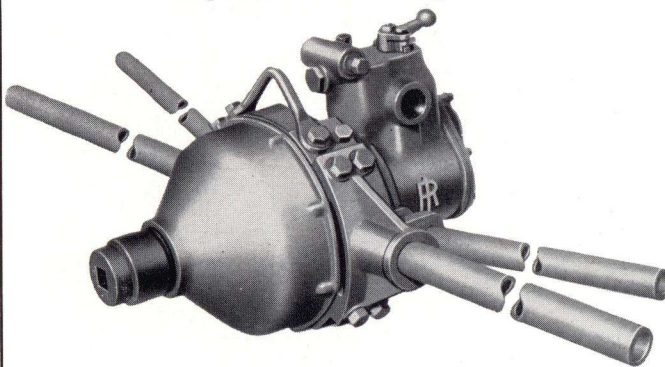
APPLICATIONS

"Multi-Vane" Drills are used for all classes of drilling, reaming, tapping, flue rolling, etc. They are hand held tools designed for one- or two-man operation. These tools have many uses in railroad shops, shipyards, machine shops, assembly plants, oil refineries, chemical plants, power stations, tool rooms and for construction and maintenance work of all kinds.

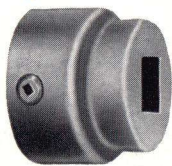


33SM, 44SM, 55SN or
55SO Series Drills.

Size 55Q or 55R Tube Rolling Machine



No. 484 Sockets



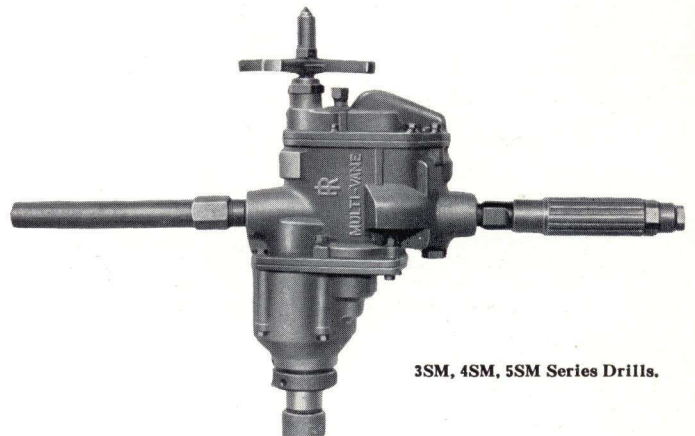
Sockets for use on Sizes 55Q and 55R Tube Rollers are keyed to the spindle and retained with a set screw. Sockets can be furnished with any size hex or square desired; however, they are stocked only with 1", 1 1/8", 1 1/4" and 1 1/2" square opening. A 1 1/2" square drive spindle that takes standard Impactool Sockets is also available.



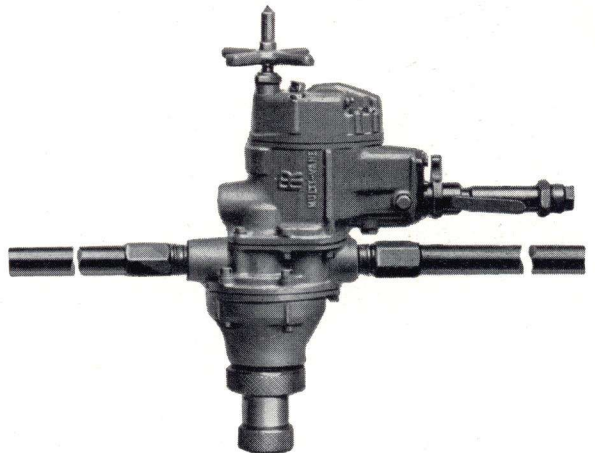
3, 4, 5 Series Drills.



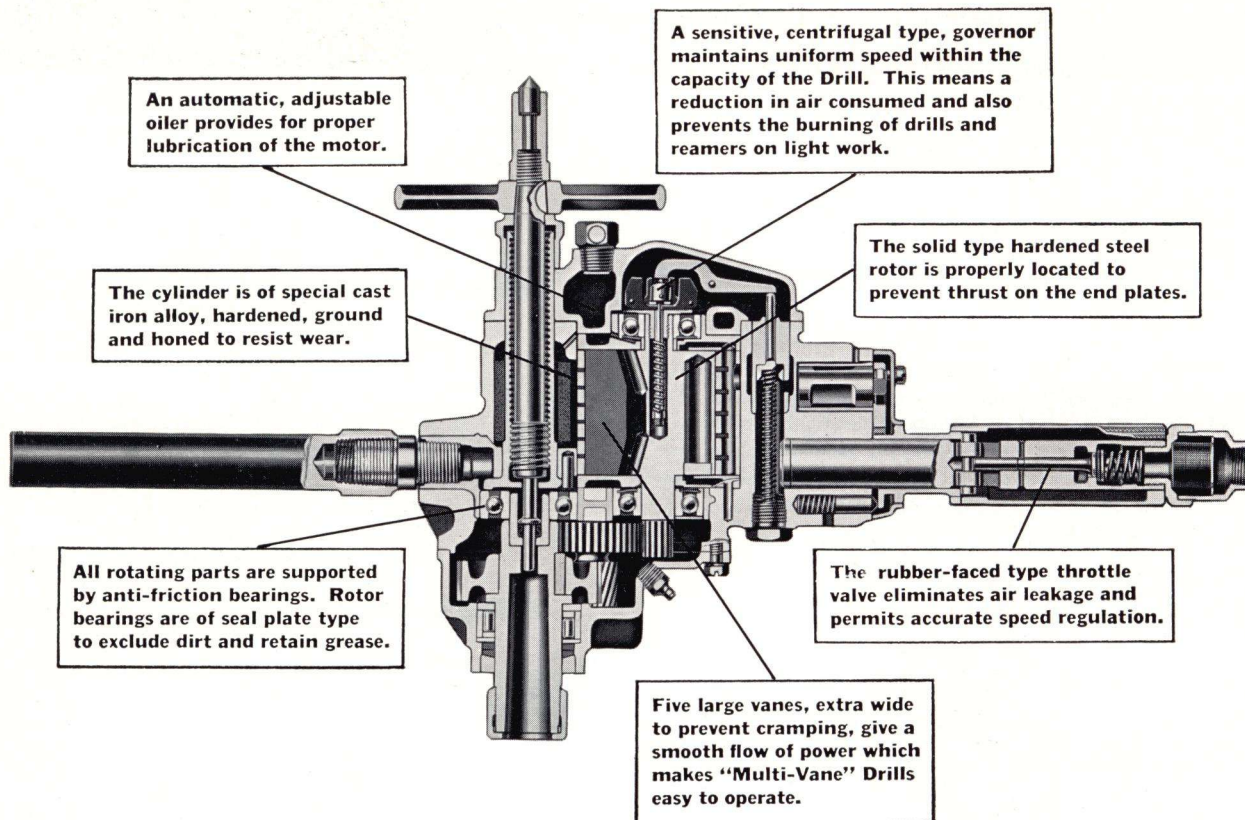
33, 44, 55 Series Drills.



3SM, 4SM, 5SM Series Drills.

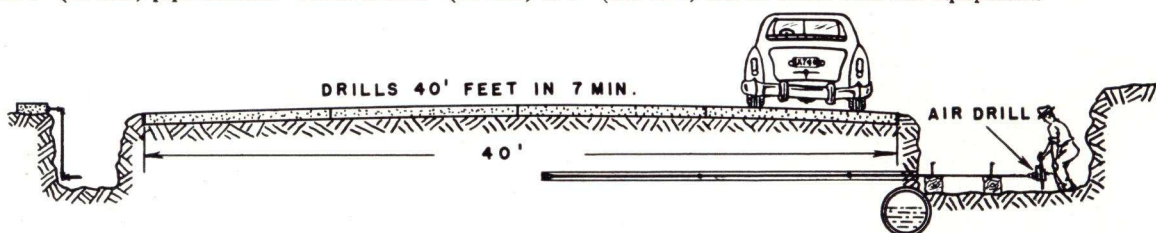


Size 33P5 Drill.

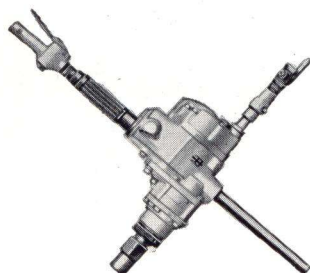


SPECIAL EARTH BORING EQUIPMENT

A new method of laying water or gas pipe under streets and highways or from "main" to house eliminates costly trench digging and resurfacing. A hole is drilled horizontally between two small excavations which have been dug at the main and at the outlet. Service tubing is then slipped into the bore. An I-R air-powered drill, with water attachment, **can easily bore 40 feet (12.19 meters) in 7 minutes.** Water is used to provide a means of washing the cuttings from the bore and also to reduce friction between the rotating drill rod and the walls of the bore. The most widely used drill rod is standard 1" (25 mm) pipe section. Bores from 2" (51 mm) to 9" (229 mm) can be made with this equipment.



The diagram above shows a cross section of street under which pipe is to be laid. Eight foot sections of drill rod are added as required.



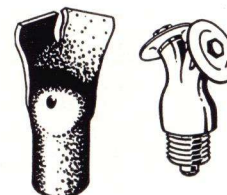
Three special sizes of I-R Air Drills, the 33SM54, 44-L54, and 55L54 are available with built in water feed attachments for this earth boring application.

Fishtail or disc type rotary bits are commonly used. They may be easily fabricated locally or purchased from:

Howell Utility Tool Co.
1650 Preston Lane
Morro Bay, California

or:

Melfred Welding & Mfg. Co.
4236 E. Washington Blvd.
Los Angeles 23, California



Series 3, 33, 4, 44, 5 and 55

Specifications and Equipment

Ingensoll-Rand

Drills

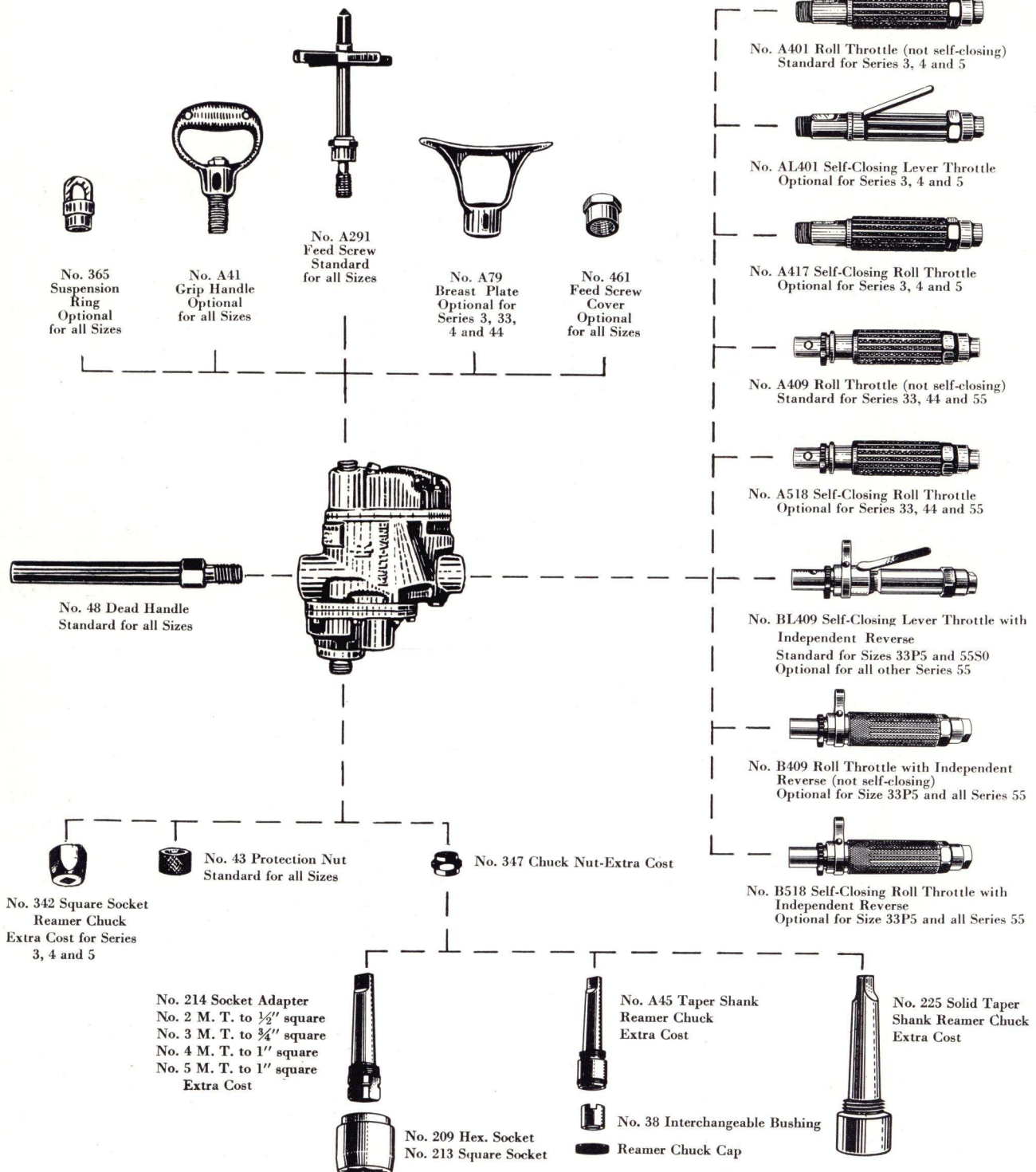
SPECIFICATIONS

Size	Speed 90 lbs. Pressure (6.33 kg/ sq cm), rpm	Weight		Length Overall		Capacity								Morse Taper Socket	Length of Feed		Hose Con- nec- tion, Pipe Tap, inches	Size Hose, inches	Distance from Side to Center of Spindle		
						Drilling		Reaming		Tapping		Tube Rolling									
		lbs.	kg.	ins.	mm	ins.	mm	ins.	mm	ins.	mm	ins.	mm		ins.	mm			inches	mm	
NON-REVERSIBLE																					
3H	800	23	10.43	13 ⁷ / ₈	352	2 ⁹ / ₃₂	23	3/4	19	3/4	19	..	..	2	..	..	..	1 ⁷ / ₈	48
3SH	800	23	10.43	14	356	1	25	3/4	19	3/4	19	..	..	3	..	..	..	1 ⁷ / ₈	48
3J	450	23	10.43	13 ⁷ / ₈	352	2 ⁹ / ₃₂	23	13 ¹ / ₁₆	21	13 ¹ / ₁₆	21	..	..	2	..	..	..	1 ⁷ / ₈	48
3SJ	450	23	10.43	14	356	1	25	13 ¹ / ₁₆	24	7/8	22	..	..	3	..	..	..	1 ⁷ / ₈	48
3J4	450	25 ³ / ₄	11.68	15	381	1	25	13 ¹ / ₁₆	24	7/8	22	4	4 ¹ / ₄	108	1/2	3/4	1 ⁷ / ₈	48	
3SK	300	23	10.43	14	356	1 1/4	32	1	25	1 1/8	29	..	..	3	..	..	..	1 ⁷ / ₈	48
3K4	300	25 ³ / ₄	11.68	15	381	1 1/4	32	1	25	1 1/8	29	..	..	4	..	..	..	1 ⁷ / ₈	48
3SM	185	28 1/4	12.81	16 3/16	427	1 1/4	32	1 1/4	32	1 1/8	41	..	..	3	..	..	..	1 ⁷ / ₈	48
3M4	185	28 1/4	12.81	17 3/8	451	1 1/4	32	1 1/4	32	1 1/8	41	..	..	4	..	..	..	1 13/16	49
3P5	86	53 3/4	16.38	20 1/2	521	2	51	2	51	2	51	..	..	*5	..	..	..	1 13/16	49
4J	450	35	15.88	14 1/2	368	1 1/4	32	1	25	1	25	..	..	3	..	..	..	2 5/16	59
4SJ	450	35	15.88	15 1/8	384	1 1/4	32	1	25	1	25	..	..	4	..	..	..	2 5/16	59
4K	310	35	15.88	14 1/2	368	1 1/4	32	1	25	1 1/8	29	..	..	3	..	..	..	2 5/16	59
4SK	310	35	15.88	15 1/8	384	1 1/4	32	1	25	1 1/8	29	..	..	4	..	..	..	2 5/16	59
4L	225	35	15.88	14 1/2	368	1 1/4	32	1 1/4	32	1 1/8	41	..	..	3	..	..	..	2 5/16	59
4SL	225	35	15.88	15 1/8	384	1 1/4	32	1 1/4	32	1 1/8	41	..	..	4	..	..	..	2 5/16	59
4SM	160	42	19.05	18 1/4	464	2	51	2	51	2	51	..	..	4	..	..	..	2 5/16	59
5H	800	47 1/4	21.43	16 1/16	424	1 1/2	38	1	25	1	25	..	..	4	..	..	..	2 5/16	65
5J	450	47 1/4	21.43	16 1/16	424	2	51	1 1/2	38	1 1/2	38	..	..	4	..	..	..	2 5/16	65
5K	300	47 1/4	21.43	16 1/16	424	2	51	2	51	2	51	..	..	4	..	..	..	2 5/16	65
5L	200	47 1/4	21.43	16 1/16	424	2 1/2	64	2 1/2	64	2 1/2	64	..	..	4	..	..	..	2 5/16	65
5SM	120	65	29.48	21 7/8	556	3	76	2 1/2	64	2 1/2	64	..	..	5	..	..	..	2 5/16	75
5SN	105	65	29.48	21 7/8	556	Heavy Reaming								5	..	..	..	2 5/16	75
5SO	77	65	29.48	21 7/8	556	Heavy Reaming								5	..	..	..	2 5/16	75
REVERSIBLE																					
33H	800	25 3/4	11.68	13 7/8	352	2 9/32	23	3/4	19	3/4	19	1	25	2	..	..	..	1 7/8	48
33SH	800	25 3/4	11.68	13 7/8	352	1	25	3/4	19	3/4	19	1	25	3	..	..	..	1 7/8	48
33J	450	25 3/4	11.68	13 7/8	352	2 9/32	23	13 1/16	21	13 1/16	21	1 1/2	38	2	..	..	..	1 7/8	48
33SJ	450	25 3/4	11.68	14	356	1	25	13 1/16	24	7/8	22	1 1/2	38	3	..	..	..	1 7/8	48
33J4	450	28 1/2	12.92	15	381	1	25	13 1/16	24	7/8	22	1 1/2	38	4	4 1/4	108	1/2	3/4	1 7/8	48	
33SK	300	25 3/4	11.68	14	356	1 1/4	32	1	25	1 1/8	29	2 1/4	57	3	..	..	..	1 7/8	48
33K4	300	28 1/2	12.92	15	381	1 1/4	32	1	25	1 1/8	29	2 1/4	57	4	..	..	..	1 7/8	48
33SM	185	31	14.06	16 3/16	427	1 1/4	32	1 1/4	32	1 1/8	41	2 1/2	64	3	..	..	..	1 7/8	48
33M4	185	31	14.06	17 3/8	451	1 1/4	32	1 1/4	32	1 1/8	41	2 1/2	64	4	..	..	..	1 13/16	49
33P5	86	56 1/2	25.63	20 1/2	521	2	51	2	51	2	51	4	102	*5	..	..	..	1 13/16	49
44J	450	36 1/4	16.44	14 1/2	368	1 1/4	32	1	25	1	25	2 1/2	64	3	..	..	..	2 5/16	59
44SJ	450	36 1/4	16.44	15 1/8	384	1 1/4	32	1	25	1	25	2 1/2	64	4	..	..	..	2 5/16	59
44K	310	36 1/4	16.44	14 1/2	368	1 1/4	32	1	25	1 1/8	29	2 1/2	64	3	4 1/4	108	1/2	3/4	2 5/16	59	
44SK	310	36 1/4	16.44	15 1/8	384	1 1/4	32	1	25	1 1/8	29	1 1/2	64	4	..	..	..	2 5/16	59
44L	225	36 1/4	16.44	14 1/2	368	1 1/4	32	1 1/4	32	1 1/8	41	3	76	3	..	..	..	2 5/16	59
44SL	225	36 1/4	16.44	15 1/8	385	1 1/4	32	1 1/4	32	1 1/8	41	3	76	4	..	..	..	2 5/16	59
44SM	160	43 3/4	19.84	18 1/4	464	2	51	2	51	2	51	4	102	4	..	..	..	2 5/16	59
55H	800	50 1/4	22.79	16 1/16	424	1 1/2	38	1	25	1	25	1	51	4	..	..	..	2 5/16	65
55J	450	50 1/4	22.79	16 1/16	424	2	51	1 1/2	38	1 1/2	38	3 1/2	90	4	..	..	..	2 5/16	65
55K	300	50 1/4	22.79	16 1/16	424	2	51	2	51	2	51	3 1/2	90	4	..	..	..	2 5/16	65
55L	200	50 1/4	22.79	16 1/16	424	2 1/2	64	2 1/2	64	2 1/2	64	4	102	4	..	..	..	2 5/16	65
55SM	120	68	30.84	21 7/8	556	3	76	2 1/2	64	2 1/2	64	Hvy. Heavy	5	5	..	..	..	2 5/16	75
55SN	105	68	30.84	21 7/8	556	Heavy Reaming								5	..	..	..	2 5/16	75
55SO	77	68 1/2	31.07	21 7/8	556	Tapping and Tube Rolling								5	..	..	..	2 5/16	75
55Q	37	195	88.45	21 3/8	556	Extra Heavy Reaming								3/4	1	5 1/2	140
55R	25	195	88.45	21 3/8	556	Tapping and Tube Rolling								3/4	1	5 1/2	140

*Size 3P5 or 33P5 Drill can be furnished with Use-Em-Up Spindle having a No. 4 Socket. When so equipped, the Drill is known as Size 3P4 or 33P4 respectively.



EQUIPMENT AVAILABLE for all sizes except 55Q and 55R



Accessories available at no extra cost when specified

No. 26 Packing Nut Spanner Wrench for all Sizes

No. 228 Grease Gun for all Sizes

No. 243 Boxsocket Wrench for all Sizes

No. 575 Gear Frame Set Screw Wrench (used on Sizes 3SM, 33SM, 3M4, 33M4, 33P4, 33P5, 4SM, 44SM, 5SM, 5SN, 5S0, 55SM, 55SN and 55S0)

Sizes 22JW, 22KW, 33W and 33SKW

Ingersoll-Rand Wood Borers

For all classes of wood-boring, Ingersoll-Rand offers four sizes of the "Multi-Vane" Wood-Borer machine with capacities ranging from 1" (25 mm) diameter holes to 4" (102 mm) diameter holes. These tools are preferred for wood-working because they have controlled power and a governor which prevents over-speeding of the wood bit. They are light-in-weight, easy to handle and have the power to keep them up to speed when under a load.

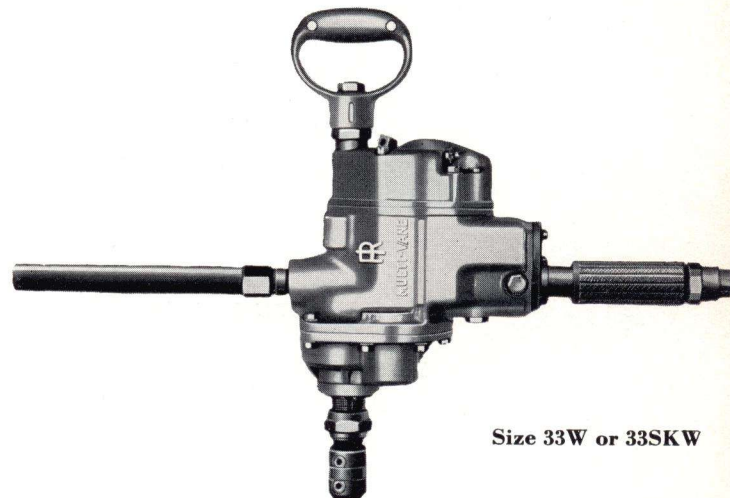
APPLICATIONS

Many uses for I-R Wood-Borers are found in:

1. Woodworking shops for miscellaneous boring work
2. Construction and erection work
3. Shipyards
4. Wharf and pier construction
5. Timbering
6. Shipping departments
7. Railroads for boring spike holes in ties, as well as bridge and trestle timber work



Size 22JW or 22KW



Size 33W or 33SKW

SPECIFICATIONS

Size	Speed, 90 lbs. Pressure (6.33 kg/sq cm), rpm	Weight		Length of Feed		Wood Bit will Drive		Morse Taper Socket	Length Overall		Hose Con- nec- tion, Pipe Tap, inches	Size Hose Recom- mended, inches	Distance from Side to Center of Spindle	
		lbs.	Kg.	inches	mm	ins.	mm		inches	mm			ins.	mm
22JW	1025	14 1/4	6.46	2 3/8	60	1	25	—	17 1/4	438	3/8	1/2	1 1/4	27
22KW	725	14 1/4	6.46	2 3/8	60	1	25	—	17 1/4	438	3/8	1/2	1 1/4	27
33W	800	28 3/4	13.04	4 1/4	108	2	51	2	17 3/8	448	1/2	3/4	1 7/8	48
33SKW	300	28 3/4	13.04	4 1/4	108	4	102	3	17 3/8	448	1/2	3/4	1 7/8	48

Wood Bit Chucks—Part No. 151



For woodboring—The No. 151 1/2" Wood Bit Chuck will take any bit with a 1/2" (13 mm.) diameter straight shank. A No. 151 5/8" Wood Bit Chuck for a Size 33SKW Drill will take a wood bit with a 5/8" (16 mm.) diameter straight shank. Order must specify No. 151 Wood Bit Chuck and state size and serial number of the tool on which it is to be used.

Finish for Spindle	No. of set screws	Size Round Straight Shank will take		Tools Used On
		ins.	mm	
*No. 2 Morse Taper Shank	2	1/2	13	33W
*No. 3 Morse Taper Shank	2	1/2	13	33SKW,
*No. 3 Morse Taper Shank	2	5/8	16	33SKW
Tapped .703"—16 thd.	1	1/2	13	2H, 2J, 2K, 2M, 2XH, 2XJ, 2XK, 2XL and 2XM
*Special Taper Socket	2	1/2	13	22JW, 22KW, 22H, 22J, 22K, 22L, 22M, 22N, 22P, 2XN and 2XP

*Requires the use of No. 347 Chuck Nut.



Equipment for "Multi-Vane" Wood-Borers



No. 79 Breast Plate
Standard for
22 series
Optional for
33 series



No. A41 Grip
Handle
Standard for
33 series



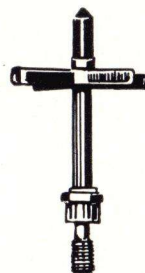
No. 365
Suspension
Ring
Optional



No. A20 Feed
Screw
Optional for
22 series



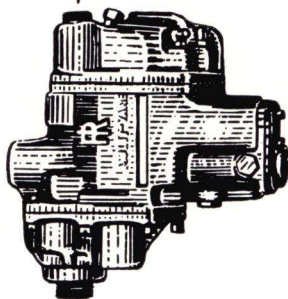
No. 461 Feed
Screw Cover
Optional for
33 series



No. A291 Feed
Screw
Optional for
33 series



No. 48 Dead Handle
Standard



No. A409 Roll Throttle (not self-closing)
Standard



No. A518 Self-Closing Roll Throttle
Optional



No. 347 Chuck Nut

No. 151-1/2" Wood Bit Chuck
Standard

No. 151-5/8" Wood Bit Chuck
(At Extra Cost for Size 33SKW)



No. 27 Chuck Wrench

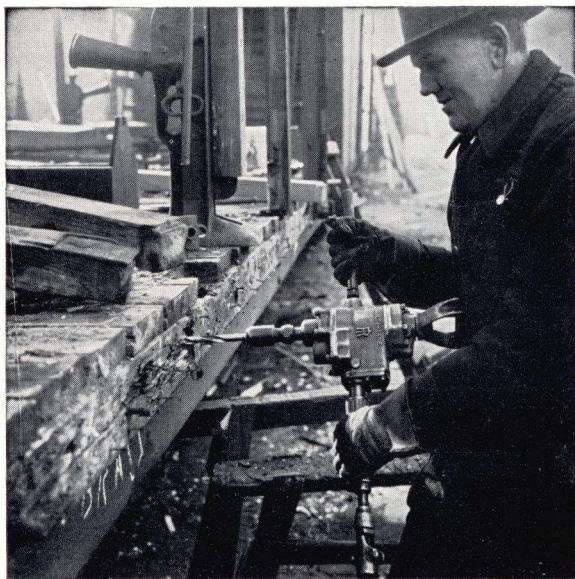
Accessories

No. 26 Spindle Packing Spanner Wrench (for Sizes 33W and 33SKW only)

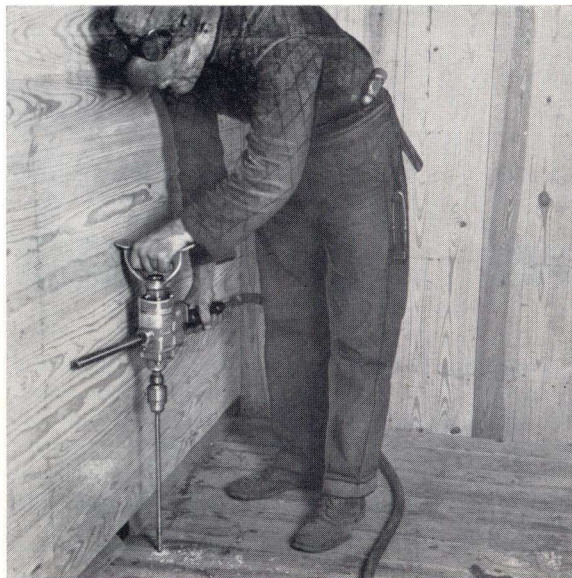
No. 69 Spindle Wrench (for sizes 22JW and 22KW only)

No. 228 Grease Gun

No. 243 Boxsocket Wrench



Size 22KW drilling in railing sill of freight car preparatory to splicing.

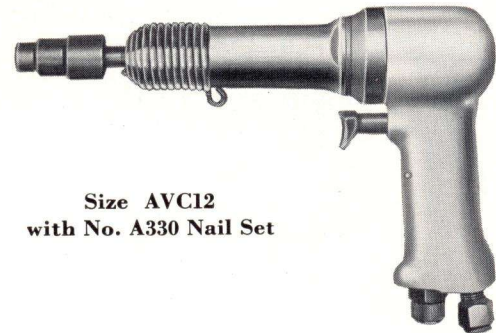


Size 22JW Wood Borer drilling 3/8" holes.

Nail Drivers

Ingersoll-Rand Riveters

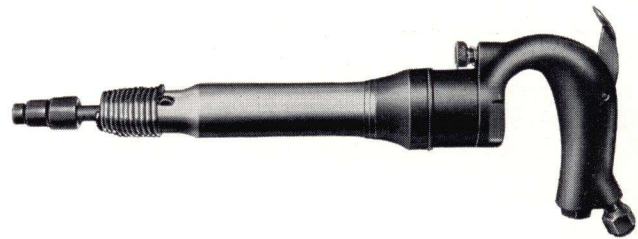
When equipped with a Nail Set, Ingersoll-Rand Lightweight Riveters are ideal for many nail and spike-driving applications. Because the tools are light in weight and because the tool, not the man, does the work, fatigue is kept to a minimum. Eight Sizes of Nail Sets are available for use in Lightweight Riveters.



Size AVC12
with No. A330 Nail Set

I-R Riveters with Nail Sets:

1. Will handle 8 penny to 60 penny nails, and 8" (203mm) 10" (254mm) or 12" (305mm) spikes.
2. Will pay for themselves with the nails saved because it is almost impossible to bend a nail.
3. Will drive nails at any angle making toe-nailing and working in confined places easy.
4. Will safely and easily start nails and spikes.
5. Will take the work out of overhead nailing.
6. Are excellent for crating and packing.
7. Will simplify furring, even onto concrete.
8. Will speed up the nailing of flooring, siding and decking.
9. Have only a few moving parts which require a minimum of maintenance.



Size AVC26
with No. A330 Nail Set



Size AVC13 with No. A330 Nail Set driving 10 penny cement coated screw nails in the manufacture of wooden pallets.

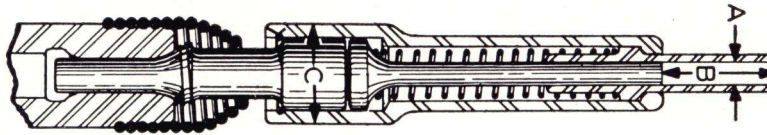


Nailing wedges on railroad flat car with Size AVC26 Riveter and Nail Set.

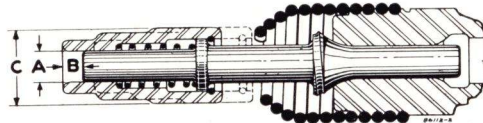


Illustrated below are the four types of Nail Sets available. In the first two (the Nos. A330) a retractable sleeve keeps the tool centered on the nail.

In the last two (the Nos. 430) the end of the nail set is cupped to keep the tool centered on the nail.



No. A330-1/4

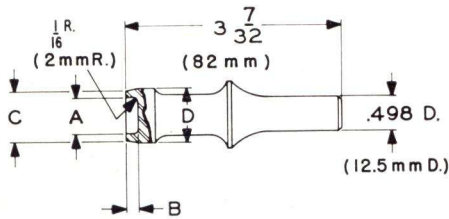


No. A330-5/16, 3/8, 1/2 and 3/4

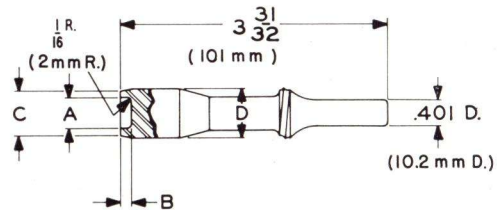
No. A330 NAIL SET DIMENSIONS

For Sizes AVC10, AVC12, AVC13, AVC101, AVC111, AVC121 and AVC131				For Sizes AVC26 and AVC27			For Size 36C		
Part No. and Size of Set	A	B	C	A	B	C	A	B	C
A330—1/4" (6mm)	.281"/7.1mm	1 3/8"/35mm	1 1/4"/30mm	....	....	....	....	....	....
A330—3/8" (8mm)	.327"/8.3mm	7/32"/6mm	1 1/4"/33mm	....	....	....	....	....	....
A330—1/2" (10mm)	.375"/9.5mm	7/32"/6mm	1 1/4"/33mm	.275"/6.9mm	7/32"/6mm	1 1/4"/24mm	....	....	....
A330—5/8" (13mm)	.625"/15.9mm	7/32"/6mm	1 1/4"/37mm	.625"/15.9mm	7/32"/6mm	1 1/4"/37mm	.625"/15.9mm	7/32"/6mm	1 1/4"/37mm
A330—3/4" (19mm)	....	....	....	....	....	....	.875"/22.2mm	7/32"/6mm	1 3/4"/44mm

*In some instances the 1/2" Set is suitable for 3/8" work.



NO. AVC26-430 CUPPED NAIL SET
FOR SIZES AVC24, AVC26 AND AVC27



NO. AVC101-430 CUPPED NAIL SET
FOR SIZES AVC10, AVC11, AVC12, AVC13
AVC101, AVC111, AVC121 AND AVC131

No. 430 NAIL SET DIMENSIONS

Part No.	A	B	C	D
AVC101-430-12	3/8"/10mm	1/8"/3mm	9/16"/14mm	5/8"/16mm
AVC101A-430-15	15/32"/12mm	5/32"/4mm	2 1/2"/17mm	3/4"/19mm
AVC26-430-18	9/16"/14mm	3/16"/5mm	3/4"/19mm	1 1/4"/21mm
AVC26-430-20	5/8"/15mm	7/32"/6mm	1 1/4"/21mm	7/8"/22mm

NAIL CAPACITIES

NAILS							Driving Time in Seconds by Hammer Size Indicated											
Size (Penny)	Body Diam.		Length		Head Diam.		AVC101 and AVC10		AVC111		AVC121 and AVC12		AVC131 and AVC13		AVC26		36C	
	ins.	mm	ins.	mm	ins.	mm	Oak	Pine	Oak	Pine	Oak	Pine	Oak	Pine	Oak	Pine	Oak	Pine
8	.130	3.3	2 1/2	64	5/32	7		1.5		1.0	1.4	0.8	1.0	0.6	0.6	0.4		
10	.148	3.8	3	76	5/16	8		2.1		1.8	2.0	1.2	1.6	1.0	0.8	0.6		
16	.162	4.1	3 1/2	89	3/8	9		3.6		2.6	2.8	1.8	2.4	1.6	1.0	0.8		
20	.192	4.9	4	102	13/32	10		6.6		4.5	4.0	2.4	3.0	2.2	2.0	1.2		
30	.203	5.2	4 1/2	114	7/16	11		7.6		6.0	6.0	3.8	5.2	2.6	2.6	1.4		
40	.225	5.7	5	127	15/32	12						4.2		3.0	4.0	1.8		
60	.262	6.7	6	152	1 1/8	14						4.8		5.0	3.0			
8" Spike	.375	9.5	8	203	3/4	19											8.0	3.0
10" Spike	.375	9.5	10	254	3/4	19											10.0	4.5
12" Spike	.375	9.5	12	305	3/4	19											13.0	7.0

The time shown is for driving nails across grain in the lumber.
Size 36C is not recommended for small nails as its high power causes them to bend.

Riveting Hammers

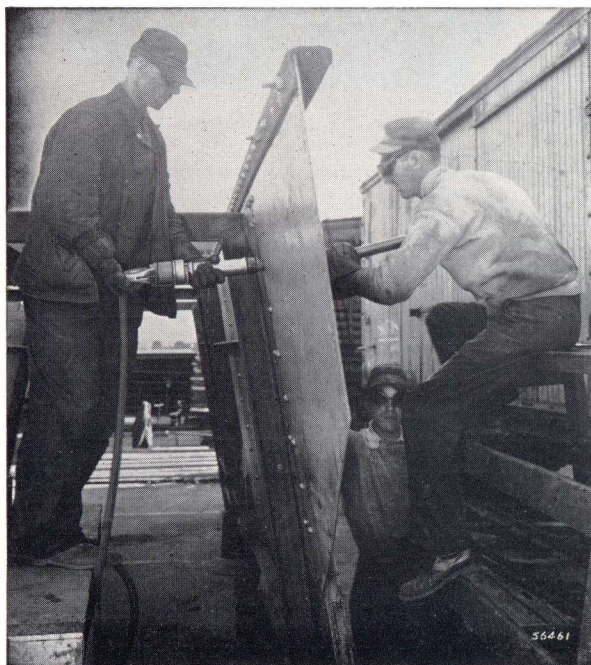
Ingersoll-Rand Riveters

PERFECT balance and valve timing combine to make Ingersoll-Rand Riveting Hammers smooth-running, powerful and easy to hold. In addition, they are noted for exceptionally low air consumption.

Sizes 6A, 8A and 9A Riveting Hammers can be obtained with either of two types of barrels, the A (clip-type), or the C (retainer-type) and with either outside trigger handle, inside trigger handle or inverted handle.

APPLICATION

I-R Riveting Hammers are available in 5 sizes (in addition to the line of lightweight Riveters) for driving hot rivets up to $1\frac{1}{4}$ inch (32mm) diameter. There is a size built for light, medium and heavy riveting work. The lighter hammers are recommended for riveting work on automobile chassis, steel cars and tanks, and light structural steel. The larger hammers are suited for general structural work, boilers, large steel vessels, ship decks, steam and water-tight work, pipe lines, etc.



Size 6A Riveting Hammer driving $\frac{3}{8}$ -inch rivets in the construction of side plates for a coal car.



Size 5A or 6A



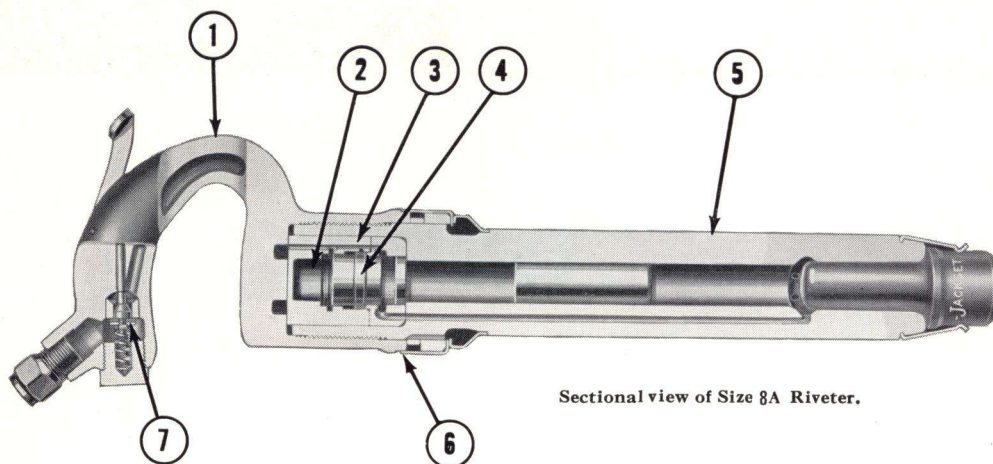
Size 8A or 9A



Size 9C Riveter with safety rivet set retainer. Also furnished in Sizes 6C and 8C. Stroke, piston diameter and capacity same as for the 6A, 8A and 9A respectively.



Size 9000 Rivet Buster is a hammer for cutting or busting off rivet heads up to $\frac{3}{4}$ -inch (19mm) and for knocking out rivets. It is a lightweight tool easily handled by one man. The cutting tools are securely held in the hammer and the design is such that light weight tools are used, so that very little power is absorbed by them.



Sectional view of Size 8A Riveter.



Inverted Type Handle



Inside Trigger Handle

CONSTRUCTION FEATURES

1. The handle is drop-forged. It is strong, durable and shaped to fit the hand.
2. The valve box forms a positive cushion for the piston on its return stroke.
3. The valve box is hardened and ground to stand up under long service.
4. The valve has ample bearing surface and is without holes or ports from which cracks or breaks ordinarily start.
5. The barrel of selected steel is heat-treated, hardened and ground.
6. Automatic spring locking device constantly exerts pressure on the tightened handle to keep it from shaking loose.
7. Rubber-face throttle valve gives long service and seats well under all conditions. The rubber face is easily and economically replaced when normal wear eventually requires its replacement.

SPECIFICATIONS

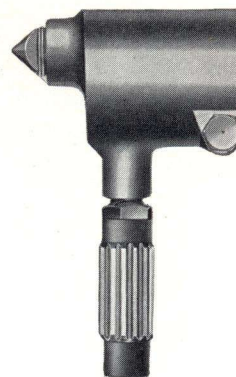
Size	Overall Length						Weight						Barrel Bore		Piston Stroke		Hose Connection Pipe Tap, inches	Size Hose Recommended, inches	Capacity, Maximum Size Hot Rivet	
	With Outside Trigger Handle		With Inside Trigger Handle		With Inverted Type Handle		With Outside Trigger Handle		With Inside Trigger Handle		With Inverted Type Handle								ins.	mm
	ins.	mm	ins.	mm	ins.	mm	lbs.	kg.	lbs.	kg.	lbs.	kg.	ins.	mm	ins.	mm	ins.	mm		
STANDARD																				
4A	15	381	15¾	391	....	....	15½	7.03	16½	7.48	....	....	1⅞	27	4	102	¾	½	¾	16
5A	16	406	16¾	416	12¾	324	18	8.16	19	8.62	18		1⅞	27	5	127	¾	½	¾	19
6A	17	432	17¾	441	13¾	349	18¾	8.50	19¾	8.96	18¾	8.50	1⅞	27	6	152	¾	½	7⁄8	22
8A	19	483	19¾	492	15¾	400	21½	9.75	22½	10.21	21½	9.75	1⅞	27	8	203	¾	½	1⅞	29
9A	21	533	21¾	543	17¾	451	25	11.34	26	11.79	25	11.34	1⅞	27	9	229	¾	½	1¼	32
*RETAINER TYPE																				
6C	17	432	17¾	441	13¾	349	18¾	8.50	19¾	8.96	18¾	8.50	1⅞	27	6	152	¾	½	7⁄8	22
8C	19	483	19¾	492	15¾	400	21½	9.75	22½	10.21	21½	9.75	1⅞	27	8	203	¾	½	1⅞	29
9C	21	533	21¾	543	17¾	451	25	11.34	26	11.79	25	11.34	1⅞	27	9	229	¾	½	1¼	32
*Does not include retainer.																				
RIVET BUSTER																				
9000	22½	572	....	....	....	....	24¾	11.23	....	....	....	....	1⅞	27	9	229	¾	½	Cutting-off Rivet up to ¾" (19 mm) diam.	

Sizes 1, 2 and 4

Ingersoll-Rand Holders-On

Ingersoll-Rand Holders-On are built to buck up rivets against the hardest blow of the hammer, insuring a strongly riveted joint and a completely filled rivet hole. Rivet heads are not mutilated, as there is no inclination to jump. Another advantage of using these Holders-On is the fact that they speed up the riveting operation.

The three sizes shown are available for bucking up rivets of any size.



Size 1 Off-Set Holder-on. For rivets of any size.



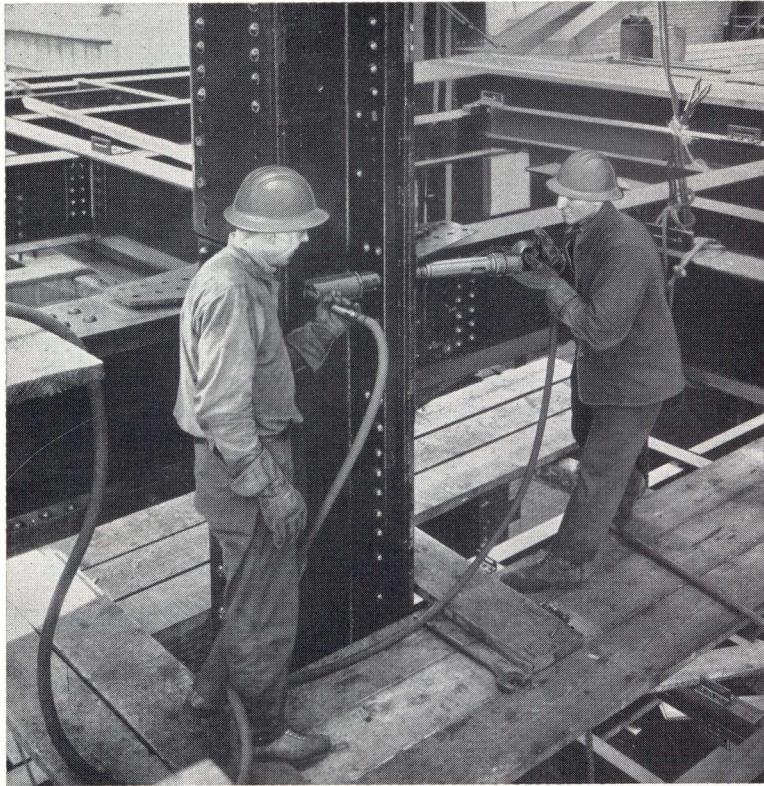
Size 4 Holder-on. For rivets of any size.



Size 2 Holder-on. For rivets of any size.

SPECIFICATIONS

Size.....	1	2	4
Piston Stroke, inches.....	1 ¹³ / ₁₆	3	4 ¹ / ₂
mm.....	46	76	114
Piston Diameter, inches.....	3 ¹ / ₈	3 ¹ / ₈	3 ¹ / ₈
mm.....	79	79	79
Length Closed, inches (without set).....	5 ¹¹ / ₁₆	8	12
mm.....	145	203	305
Length Open, inches (without set).....	7 ¹ / ₂	11	16 ¹ / ₂
mm.....	191	375	635
Weight, pounds.....	12 ³ / ₄	14 ³ / ₄	25
kg.....	5.78	6.69	11.34
Hose Connection Pipe Tap, inches.....	3 ³ / ₈	3 ³ / ₈	3 ³ / ₈
Size Hose Recommended, inches.....	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂
Rivet Set Shanks.....	1.2165" (5.48mm)	diam. by 2 ³ / ₄ "	(70mm) long
Distance Side to Center, inches.....	1 ¹ / ₈	1 ³ / ₄	1 ¹³ / ₁₆
mm.....	29	44	46



A Size 2 Holder-on bucking up rivets being driven by a Size 8A Riveting Hammer.



Size 2 Holder-on bucking up rivets on truck chassis.

Scaling Hammers

Ingersoll-Rand Hammers

These Scalars have long been popular because of their high-speed action, light weight and short over-all length. They are widely used for Light Chipping, Calking and Scaling:

ON	IN
Light Castings	Steel Mills
Sheet Metal	Foundries
Airplanes	Machine Shops
Dies and	Tool Rooms
Similar Light Work	Power Plants
	Assembly Shops
	Railroad Shops
	Shipyards
	Oil Refineries

Flapper-Valve Type



Size K1 Scaling Hammer.



Size K2L Scaling Hammer.



Size K2LC Scaling Hammer,
with Retainer.

Weld Flux Scalars

The Series 171 and 181 Weld Flux Scalars are high speed light hitting tools used for removing flux and spatter after welding, scraping heavy paint, removing light scale, removing sand from castings, etc.

A Blowgun button is available on Lever and Button Throttle models. With the Blowgun the operator can easily and quickly direct air from the front of the tool to the work surface and blow it clean.

An angle scaling chisel or a blank chisel will be furnished if desired. A positive lock retainer can be furnished if specified.



Size 171L or 181L with Lever Throttle.



Size 171LB or 181LB with Lever Throttle and Blowgun.



Size 171B or 181B with Button Throttle.



Size 171BB or 181BB Button Throttle and Blowgun.



Size 171P or 181P with Push Throttle.



Size 171G or 181G with Pistol Grip Throttle.

Valveless



N1 Scaling and Chipping Hammer.



VALVELESS SCALING TOOLS

Sizes 16 and 316 Scaling Tools are essentially the same tool except that Size 316 contains three pistons while Size 16 has only one. A Stop Cock and Connector, illustrated below, is standard equipment on both sizes. However, a Roll Throttle can be furnished in place of the Stop Cock at extra cost.

Size 16 with the short piston is suitable for cleaning rust, paint and scale from structural steel, boilers, tanks, etc. around rivet heads not exceeding one inch (25mm) in diameter. With a long piston it is used for work on rivet heads larger than one inch (25mm). Size 16 can also be used for cleaning the inside of large castings. Size 16 can be furnished with a Carbide Tipped Long Piston when specified.



Size 16 Scaling Tool.

Size 316 is designed for cleaning and scaling bridges, ship decks and hulls, railroad cars, structural steel, pipe, and for roughing concrete. It can be used as a hand-held tool or mounted on a frame for multiple tool work. The barrel of Size 316 has two tapped bosses, one located at the end and the other at the side of the barrel. Either boss can be used as the air inlet. A dead handle is furnished as standard equipment and screws into the tapped boss not occupied by the Stop Cock Connector. The dead handle may be replaced with a pipe plug for close-quarter scaling. Size 316 can be furnished with long wearing Carbide Tipped Pistons when specified.



Size 316 Scaling Tool.

SPECIFICATIONS

Size	Weight Without Chisel		Overall Length Without Chisel		Hose Connection, Pipe Tap, inches	Size Hose Recommended, inches	Bore		Piston Stroke		Work adapted for
	lbs.	kg.	ins.	mm.			ins.	mm.	ins.	mm.	
*K1	5 3/4	2.44	8 3/8	219	1/4	1 1/2	3/4	19	1	25	Light chipping, calking and scaling on light casing, sheet metal and dies and similar light work.
K2L	6	2.72	10	254	1/4	1 1/2	7/8	22	1 3/4	44	
K2LC	7 1/2	3.40	11	279	1/4	1 1/2	7/8	22	1 3/4	44	
171L	3 3/4	1.53	7 3/8	187	1/4	5/16	15/16	24	9/16	14	
171LB	3 1/2	1.59	7 13/16	198	1/4	5/16	15/16	24	9/16	14	
171B	3 3/4	1.53	7 3/8	187	1/4	5/16	15/16	24	9/16	14	
171BB	3 1/2	1.59	7 13/16	198	1/4	5/16	15/16	24	9/16	14	
171P	3 1/2	1.59	8 1/2	216	1/4	5/16	15/16	24	9/16	14	
171G	4 3/4	2.10	11 3/8	284	1/4	5/16	15/16	24	9/16	14	
181L	3 3/4	1.70	8 3/4	222	1/4	5/16	15/16	24	1 1/16	27	Removing flux and spatter after welding, scraping paint, etc.
181LB	3 3/4	1.76	9 1/16	233	1/4	5/16	15/16	24	1 1/16	27	
181B	3 3/4	1.70	8 3/4	222	1/4	5/16	15/16	24	1 1/16	27	
181BB	3 3/4	1.76	9 1/16	233	1/4	5/16	15/16	24	1 1/16	27	
181P	3 3/4	1.76	9 7/8	251	1/4	5/16	15/16	24	1 1/16	27	
181G	5	2.27	12 7/16	319	1/4	5/16	15/16	24	1 1/16	27	Light scaling, calking and chipping
N1	8	3.63	10 1/2	267	1/4	5/16	—	—	1 1/4	32	

*K1 Scaler has nozzle to take Navy Standard Scaler Chisels having shanks 1/2" (13mm) diam. and 1 3/4" (44mm) long. (Either hex. or round.)

†A whip of 5/16" hose up to 10 ft. long can be used without seriously affecting the power.

Size	Weight						Height						Side to Center Distance		Hose Connection, Pipe Tap, inches	Size Hose Recommended, inches
	Without Throttle		With Roll Throttle		With Stop Cock		Operating		With Piston Extended		With Piston Retracted					
	lbs.	kg.	lbs.	kg.	lbs.	kg.	ins.	mm	ins.	mm	ins.	mm	ins.	mm		
16 (Short)	2½	1.30	4¾	2.10	4¾	1.98	4¼	105	4¼	108	3¼	83	1¾	30	¼	⅝
16 (Long)	3	1.36	4¾	2.15	4½	2.04	5⅜	137	5½	140	4¼	108	1¾	30	¼	⅝
316	5	2.27	7¾	3.46	7¾	3.35	3⅜	100	4	102	3⅜	81	⅞	22	¼	⅝

Chisels and Chisel Blanks

When ordering scaling hammers, always specify whether they are to be equipped with round or hexagon nozzles. Chisel blanks can be obtained with either round or hexagon shanks. Differential

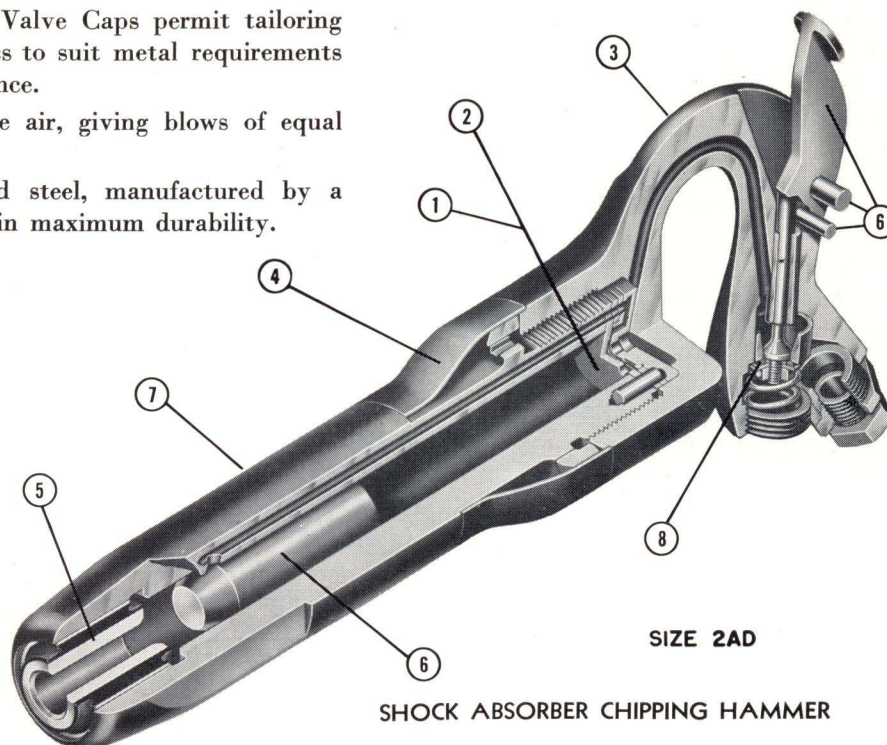
shank chisels can also be supplied for use in tools equipped with hexagon nozzles.

Chipping Hammers

Ingersoll-Rand Hammers

Construction Features

1. Interchangeable Valve Caps permit tailoring cutting characteristics to suit metal requirements and operator preference.
2. Valve meters the air, giving blows of equal power.
3. Handle is forged steel, manufactured by a special process to gain maximum durability.



SHOCK ABSORBER CHIPPING HAMMER

4. Exhaust Deflector serves as part of the handle locking mechanism that holds the barrel tightly to the handle. It may be turned so that the tool exhausts in the direction desired.

5. Rubber bonded nozzle cushions the shock of the piston striking the nozzle, eliminating the shock and impact that was formally transmitted through the barrel and handle directly into the operator's arm.

6. Iramet, a special wear-and rust-resistant plate, is used on throttle lever, trigger pins, piston and nozzle.

7. Barrel is manufactured by a special process to give long trouble-free service.

8. Rubber-faced Throttle Valve gives long service and provides accurate and sensitive throttling.

Handles

An open type outside trigger handle (No. A1A, below) is the standard handle furnished in all sizes. It is light, well-balanced and has an easy and convenient grip. Additional open-type handles with advanced air inlet and with either inside (No. A92A) or outside (No. A94A) trigger are also obtainable for all sizes, but are furnished only when specified.



No. A1A



No. A92A



No. A94A



FEATURES

Controlled Air

1. Gives immediate starting with full power.
2. Permits smooth graduated cutting.
3. Provides added power under "stalled cut" conditions.
4. Eliminates valve choking and short-stroking pistons.
5. Permits smooth power — automatically responds to the demand for more air.

Easy Handling

1. Designed and streamlined for better weight distribution.
2. Provides more comfort — new front-end construction minimizes roughness — chisel feeds into the cut.

AIRite Valve

1. Air is metered through a proper combination of port and surge chambers.
2. Positive and free-seating valve does not depend upon dowels for alignment.
3. Proportions amount of air to front and rear of piston to maintain cutting efficiency under all conditions.

Long Life

1. Piston, nozzle, throttle lever plunger and other wearing parts are surfaced with IRAMET, a wear-resistant product developed by Ingersoll-Rand.

SPECIFICATIONS

Power Sizes				Piston Stroke		Length Overall		Weight		Hose Connection Pipe Tap, Inches	Size Hose Recommended, Inches
Normal Cut	Light Cut	Extra Cut	Super Cut	Inches	mm	Inches	mm	Lbs.	Kg.		

•CONTROLLED-POWER CHIPPING HAMMERS

1	L1	E1	S1	1	25	13½	343	12¾	5.78	¼	½
2	L2	E2	S2	2	51	14	356	13⅛	5.95		
2A	L2A	E2A	S2A	2½	64	15	381	14	6.35		
3	L3	E3	S3	3	76	15⅞	403	14⅝	6.63		
4	L4	E4	S4	4	102	16⅞	429	15½	7.03		

•SHOCK-ABSORBER CHIPPING HAMMERS

1D	L1D	E1D	S1D	1	25	13⅞	333	12¾	5.61	¼	½
2D	L2D	E2D	S2D	2	51	13⅝	346	12¾	5.78		
2AD	L2AD	E2AD	S2AD	2½	64	14⅝	372	13⅝	6.18		
3D	L3D	E3D	S3D	3	76	15½	394	14¼	6.46		
4D	L4D	E4D	S4D	4	102	16½	419	15⅞	6.86		

*•CONTROLLED-POWER CHIPPING HAMMERS—RETAINER TYPE

W1	—	—	—	1	25	15⅞	403	14¾	6.69	¼	½
W2	—	—	—	2	51	16⅞	416	15⅞	6.86		
W2A	—	—	—	2½	64	17⅞	441	16	7.26		
W3	—	—	—	3	76	18¼	464	16⅝	7.54		
W4	—	—	—	4	102	19¼	489	17½	7.94		

•Furnished with hexagon nozzle unless round or tapered nozzle is specified.

*Arrow Tool Retainer can be furnished if specified.

Size S12

Ingersoll-Rand Saws

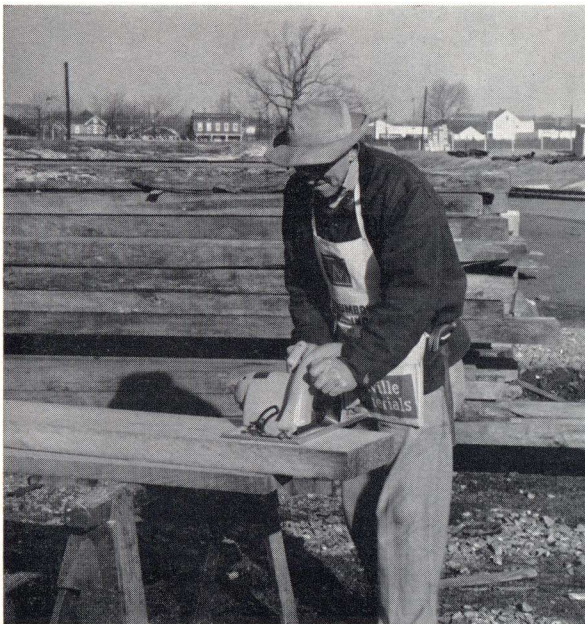
This is the most powerful portable circular air saw on the market. It is powered by a Multi-Vane Motor which has proved so efficient and economical in other I-R tools. The saw blade is driven by a simple spur gear drive; there are no bevel gears. The motor being so close to the center of the machine, centers the weight between the handles.

For greater safety the throttle lever is on the inside of the handle. The throttle lever is controlled by the finger tips of the operator, and when the lever is released, the saw stops instantly. The housing above the saw blade and the telescoping blade guard under the blade further protect the operator.

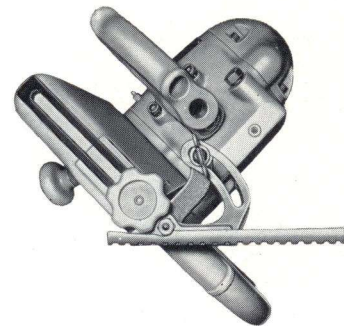
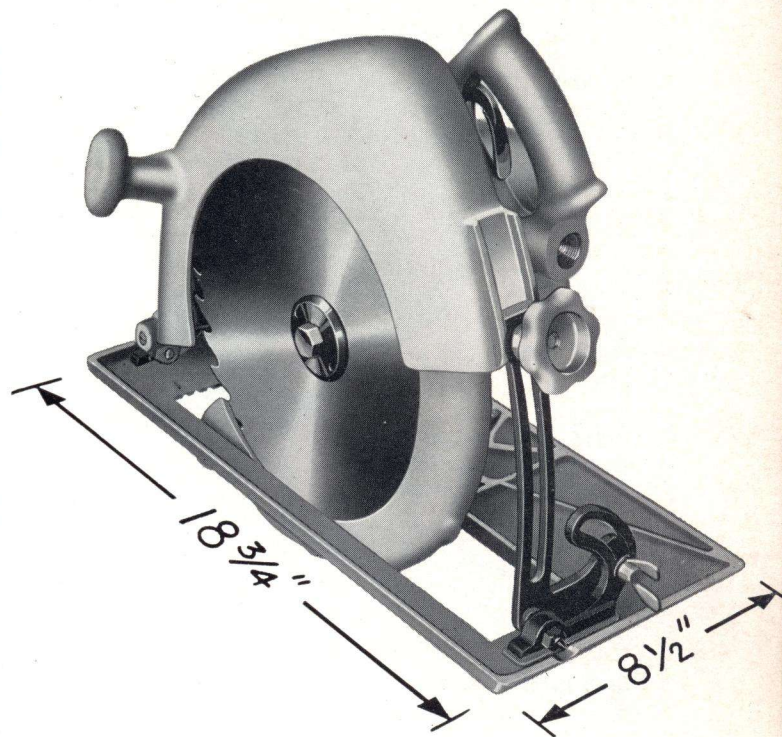
The motor and blade housings, blade guard, and handles are of cast aluminum for weight reduction and durability. Carefully selected materials and the liberal use of ball bearings add to the efficient long life of this machine. Special attention has been given to convenient and effective lubrication.

By simple adjustments of a hand screw and a thumb screw the depth and angle of the cut may be altered. The blade may be removed and exchanged quickly and easily.

The attractive metal carrying case furnished with each saw houses and protects the machine and stores extra saw blades and maintenance tools.



Saw moves easily through 3" plank.



Bevel Cut



Carrying Case for carrying and safe keeping. Holds extra blades and maintenance tools.

FEATURES

1. POWERFUL

Most powerful portable circular saw on the market. Powered by efficient Multi-Vane Air Motor. No bevel gears. Uses efficient spur gear.

2. EASY TO HANDLE

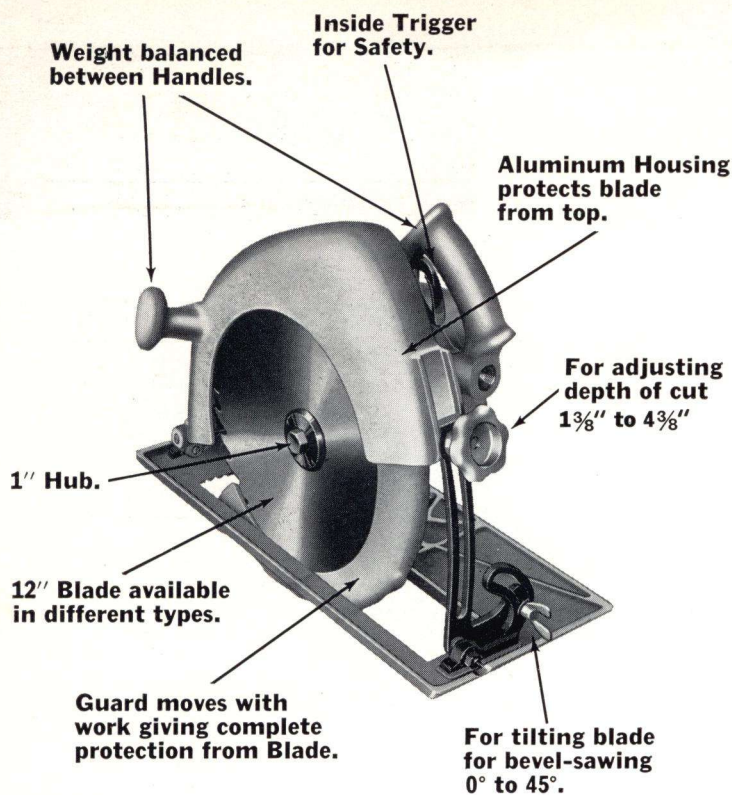
Light in weight.
Weight balanced to handles.
Finger tip control of motor.
Large base for resting saw.
Base is grooved to slide easily.
Equipped with convenient carrying case.

3. SAFE

Saw blade housing above blade.
Telescoping guard under blade.
Throttle is protected inside handle.

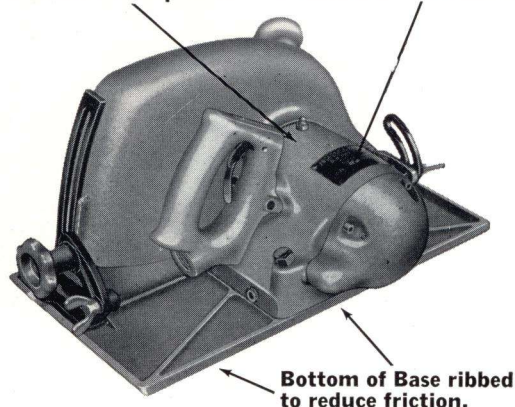
4. STURDY CONSTRUCTION

Short driving arbor.
No angle gearing.
Strong aluminum castings for housing and handles.
All materials in motor selected for ruggedness.
All rotating parts supported on ball bearings.



Spur gearing assures efficient use of power.

Powerful Multi-Vane Motor.



SPECIFICATIONS

Size	S12
Free speed, r.p.m.	2400
Weight with saw blade, pounds.	33
kg.	14.97
Maximum Horsepower.	3 3/4
Speed at Max. H.P.	1560
Dia. of saw blade, inches.	12
mm.	305
Dia. of arbor hole in saw blade, inches.	1
mm.	25
Minimum depth of cut with 12" blade, inches.	1 3/8
mm.	35
Max. depth of cut, inches.	4 3/8
mm.	111
Max. depth of cut at maximum 45° angle, inches.	4
mm.	102
Max. thickness of material for 45° cut, inches.	2 7/8
mm.	73
Length overall, inches.	19 7/8
mm.	505
Width overall, inches.	12 1/2
mm.	318
Distance from center of Saw Blade to front end of Guide, inches.	8 5/16
mm.	211
Distance from Saw Blade to end of Motor Casing, inches.	9 1/8
mm.	231.8
Hose connection pipe tap, inches.	1/2
Size hose recommended, inches.	*3/4

*A whip of 1/2" hose up to 12 1/2 ft. long can be used without seriously affecting the power.

EQUIPMENT

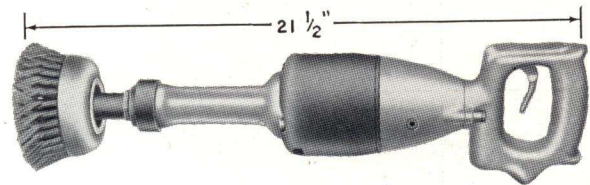
Standard Equipment	Optional Equipment
One No. 4 Metal Carrying Case One No. 16 Blade Flange (Pin-type) One No. 26 Spanner Wrench One No. 257M Saw Blade (for cross-cut wood sawing)	One No. 116 Blade Flange (Plain-type) One No. 257P Saw Blade (for ripping wood), or One No. 257R Saw Blade (combination Blade for either cross-cutting or ripping wood. Also used as a planer saw giving a smooth finish), or One No. 257S Saw Blade (for cutting annealed copper thicker than 1/16", sheet lead 1/4" and thicker, aluminum, magnesium, plastic, micarta, formica, etc.), or One No. 257W Saw Blade (for cutting Bakelite, hard fibers, sheet rock, magnesite, slate, asbestos shingles, bonite, hard rubber flooring, asphaltum flooring, lead pipe, sheet lead, zinc covered moulding or weather stripes, lead covered telephone or power cables, sheet zinc and kalamite), or One No. 257X Saw Blade (for cutting aluminum thicker than 1/4") One No. 257Y Saw Blade (for cutting flexible conduit tubes, copper moulding, sheet brass and sheet zinc or copper up to 1/16" thick), or One No. 257Z Saw Blade (for cutting insulating board, inlaid cork, cork linoleum, wall board, beaver board and veneered stock)
One No. 443 Socket Wrench (3/4" (19 mm) opening) ACCESSORIES (furnished only when specified) One No. 27 Hexagon Wrench (3/16" (8 mm) across flats) One No. 228 Grease Gun One No. 426 Hexagon Wrench (1/4" (6 mm) across flats)	One No. 478 Hexagon Wrench (3/16" (5 mm) across flats) One No. 562 Hexagon Wrench (7/32" (6 mm) across flats) One No. 579 Hexagon Wrench (7/16" (11 mm) across flats)

Wire Brush Machines

Ingersoll-Rand Abrasive Tools

Ingersoll-Rand Wire Brush Machines are ideal for removing rust, scale or paint from metal surfaces, cleaning up castings and cleaning welds.

Available in fifty-five sizes with either radial or cup type wire brushes, they will efficiently perform the most demanding wire brushing and polishing jobs.



Size 3GW45

SPECIFICATIONS

Size	Free Speed, rpm	Weight without Brush		Overall Length		Wire Brush Diameter, inches		Size Hose Recommended, inches	Hose Connection Pipe Tap, inches	Distance from Side to Center of Arbor	
		lbs.	kg.	Ins.	mm	Radial	Cup Type			inches	mm
3GW45	4500	15 3/8	6.97	21 1/2	546	8	6	★ 3/4	1/2	2	51
3LW45	4500	15 1/8	6.86	23 3/8	600	8	6	★ 3/4	1/2	2	51
3RW45	4500	15 1/8	6.86	23 3/8	600	8	6	★ 3/4	1/2	2	51
3SW45	4500	15 1/8	6.86	23 3/8	600	8	6	★ 3/4	1/2	2	51
4G31	3100	15	6.80	22 3/4	578	10	6	3/4	1/2	2 5/16	59
4L31	3100	14 7/8	6.75	24 7/8	632	10	6	3/4	1/2	2 5/16	59
4R31	3100	14 7/8	6.75	24 7/8	632	10	6	3/4	1/2	2 5/16	59
4S31	3100	14 7/8	6.75	24 7/8	632	10	6	3/4	1/4	2 5/16	59
4G41	4100	15	6.80	22 3/4	578	19	6	3/4	1/2	2 5/16	59
4L41	4100	14 7/8	6.75	24 7/8	632	10	6	3/4	1/2	2 5/16	59
4R41	4100	14 7/8	6.75	24 7/8	632	10	6	3/4	1/2	2 5/16	59
4S41	4100	14 7/8	6.75	24 7/8	632	10	6	3/4	1/2	2 5/16	59
4G45	4500	15	6.80	22 3/4	578	10	6	3/4	1/2	2 5/16	59
4L45	4500	14 7/8	6.75	24 7/8	632	10	6	3/4	1/2	2 5/16	59
4R45	4500	14 7/8	6.75	24 7/8	632	10	6	3/4	1/2	2 5/16	59
4S45	4500	14 7/8	6.75	24 7/8	632	10	6	3/4	1/2	2 5/16	59
GA1S45	4500	8 1/8	3.69	4 7/8	113	—	6	* 1/2	1/4	1 1/8	40
GA1L45	4500	8 1/8	3.69	4 7/8	113	—	6	* 1/2	1/4	1 1/8	40
GA1S60	6000	8 1/8	3.69	4 7/8	113	—	6	* 1/2	1/4	1 1/8	40
GA1L60	6000	8 1/8	3.69	4 7/8	113	—	6	* 1/2	1/4	1 1/8	40
1FB45	4500	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FBX45	4500	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FL45	4500	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FR45	4500	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FW45	4500	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FB60	6000	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FBX60	6000	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FL60	6000	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FR60	6000	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
1FW60	6000	6 3/8	2.89	7 1/4	181	—	6	● 1/2	1/4	1 1/2	38
21FA45	4500	10	4.54	15 1/4	387	—	6	1/2	1/2	1 7/8	48
21FAL45	4500	10	4.54	15 1/4	387	—	6	1/2	1/2	1 7/8	48
21FAR45	4500	10	4.54	15 1/4	387	—	6	1/2	1/2	1 7/8	48
21FA60	6000	10	4.54	15 1/4	387	—	6	1/2	1/2	1 7/8	48
21FAL60	6000	10	4.54	15 1/4	387	—	6	1/2	1/2	1 7/8	48
21FAR60	6000	10	4.54	15 1/4	387	—	6	1/2	1/2	1 7/8	48
21F45	4500	7	3.18	10 1/8	255	—	6	1/2	1/2	1 7/8	48
21FX45	4500	7	3.18	10 1/8	255	—	6	1/2	1/2	1 7/8	48
21F60	6000	7	3.18	10 1/8	255	—	6	1/2	1/2	1 7/8	48
21FX60	6000	7	3.18	10 1/8	255	—	6	1/2	1/2	1 7/8	48
3F45	4500	9 3/8	4.24	8 7/8	218	—	6	★ 3/4	3/8	2 1/8	54
3F50	5000	9 3/8	4.24	8 7/8	218	—	6	★ 3/4	3/8	2 1/8	54
3F60	6000	9 3/8	4.24	8 7/8	218	—	6	★ 3/4	3/8	2 1/8	54
42F31	3100	11 1/4	5.10	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42FX31	3100	11 1/4	5.10	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42FL31	3100	12	5.44	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42F41	4100	11 1/4	5.10	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42FX41	4100	11 1/4	5.10	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42FL41	4100	12	5.44	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42F45	4500	11 1/4	5.10	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42FX45	4500	11 1/4	5.10	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42FL45	4500	12	5.44	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42F60	6000	11 1/4	5.10	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42FX60	6000	11 1/4	5.10	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57
42FL60	6000	12	5.44	8 1/8	221	—	6	★ 3/4	1/2	2 1/4	57

★ A whip of 1/2" hose up to 8 ft. long can be used without seriously affecting performance.

* A whip of 3/8" hose up to 8 ft. long can be used without seriously affecting performance.

† Can be furnished with a 3/8" pipe tap inlet when so specified.

● A whip of 3/8" hose up to 8 ft. long can be used without seriously affecting performance.



Size	Standard Equipment	Optional Equipment
3GW45, 3LW45, 3RW45 and 3SW45	††One No. K28 6" Cup Wire Brush, Coarse Knot-Type One No. 67 Wire Brush Lock Washer One No. 104 Short Arbor, and One No. 388 Wire Brush Spacer One No. 18 Wheel Flange Nut	††One No. 28 6" Cup Wire Brush, Coarse Crimped-Type, or ††One No. L28 6" Cup Wire Brush, Fine Crimped-Type, or ††One No. KL28 6" Cup Wire Brush, Fine Knot-Type, or One No. K81-6 6" Radial Wire Brush (2 sections), or One No. K81-8 8" Radial Wire Brush (2 sections) One No. 4 Long Arbor, and One No. 88 Wire Brush Spacer
4G31, 4L31, 4R31 and 4S31	One No. 4 Long Arbor, and One No. 88 Wire Brush Spacer ††One No. K28 6" Cup Wire Brush, Coarse Knot-Type One No. 67 Wire Brush Lock Washer One No. 18 Wheel Flange Nut	One No. 104 Short Arbor, and One No. 388 Wire Brush Spacer ††One No. 28 6" Cup Wire Brush, Coarse Crimped-Type, or ††One No. L28 6" Cup Wire Brush, Fine Crimped-Type, or ††One No. KL28 6" Cup Wire Brush, Fine Knot-Type, or One No. K81-6 6" Radial Wire Brush (2 sections), or One No. K81-8 8" Radial Wire Brush (2 sections), or One No. K81-10 10" Radial Wire Brush (2 sections)
4G41, 4L41, 4R41, 4S41, 4G45, 4L45, 4R45 and 4S45	One No. 4 Long Arbor, and One No. 88 Wire Brush Spacer ††One No. K28 6" Cup Wire Brush, Coarse Knot-Type One No. 67 Wire Brush Lock Washer One No. 18 Wheel Flange Nut	One No. 104 Short Arbor, and One No. 388 Wire Brush Spacer ††One No. 28 6" Cup Wire Brush, Coarse Crimped-Type, or ††One No. L28 6" Cup Wire Brush, Fine Crimped-Type, or ††One No. KL28 6" Cup Wire Brush, Fine Knot-Type, or One No. K81-6 6" Radial Wire Brush (2 sections), or One No. K81-8 8" Radial Wire Brush (2 sections)
GA1S45, GA1L45, GA1S60, and GA1L60	One No. 48 Dead Handle One No. 386 Inner Wheel Flange One No. 565 Air Strainer (1/4" pipe tap inlet) One No. 91 Wire Brush Nut	One No. 465 Air Strainer (3/8" pipe tap inlet)
1FB45, 1FBX45, 1FL45, 1FR45, 1FW45, 1FB60, 1FBX60, 1FL60, 1FR60 and 1FW60	One No. 48 Dead Handle One No. 91 Wire Brush Nut One No. 186 Wire Brush Locating Flange	
21FA45, 21FAL45, 21FAR45, 21FA60, 21FAL60, 21FAR60, 21F45, 21FX45, 21F60, 21FX60, 3F60, 3F45 and 3F50	One No. 48 Dead Handle One No. 91 Wire Brush Nut One No. 386 Inner Wheel Flange	One No. 148 Angle Dead Handle (for Series 21FA only)
All Sizes 42F, 42FX and 42FL	One No. 48 Dead Handle One No. 91 Wire Brush Nut One No. 386 Inner Wheel Flange	

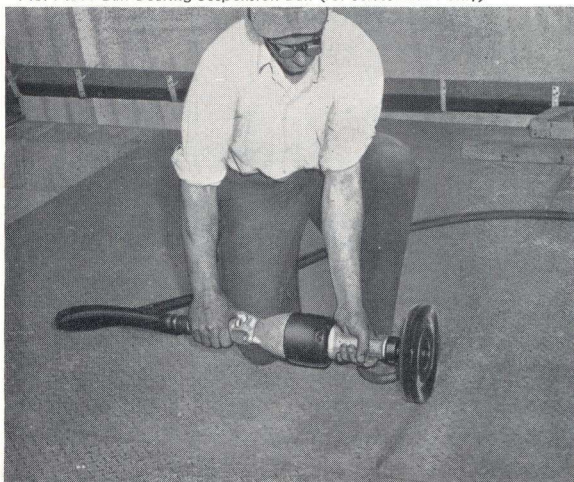
††Includes two No. 134 Wire Brush Flanges.

ACCESSORIES (furnished when specified at no extra cost)

- No. 130 Hose Whip (8' of 3/8" hose complete with fittings) (for 1F series only)
- No. 202 Back Head Cap Screw Wrench (for Series 21F and 21FA only)
- No. 228 Grease Gun (for all series except 3, 4, 21F and 21FA)
- No. 237 Bearing Nut Spanner Wrench (for series 3, 4, 21F, 21FA, 3F and 42F)
- No. 275 Flange Screw Wrench (for 3F only)
- No. 380 Oil Chamber Plug Wrench (for Series GA1S, GA1L, 1F, 21F and 21FA)
- No. 478 Hexagon Wrench (3/16" (5 mm) across flats) (for series 1F, 21FA and 3F)
- No. 478 Hexagon Wrench (3/16" (8 mm) across flats) (for 3 and 4 series only)
- No. 482 Wheel End Nut Wrench (for series 21F and 21FA)
- No. 562 Hexagon Wrench (3/32" (4 mm) across flats) (for series 21FA, 4 and 42F)
- No. 562 Hexagon Wrench (3/16" (5 mm) across flats) (for series 3 and 4)
- No. 579 Hexagon Wrench (7/16" (11 mm) across flats) (for series 3 and 4)

EQUIPMENT (Available at extra cost)

- No. A484-27 27" (686 mm) extension handle (for series GA1S and GA1L only)
- No. A366 Ball Bearing Suspension Bail (for series 21FA only)



Size 3SW45 Wire Brush Machine with Radial Wire Brush cleaning joints in boiler plate flooring prior to welding.



Size 3F45 with Wire Brush

SEE SHEET 15
FOR WIRE BRUSHES

Special Grinders

Ingersoll-Rand Abrasive Tools

Size 1AMG Surfacing Machine is designed for finishing and dressing-up concrete and stone. This Tool will remove form marks and do general dressing work faster, cheaper and with less appreciable fatigue to the operator, than hand methods. It is unsurpassed on monumental work for smoothing-up and beveling or rounding corners.

Weight, pounds	8½
kg	3.86
Length, inches	11¾
mm	289
Speed, rpm	1250
Size Arbor	½"-20 thread
Wheel Dimensions,	
Outside Diameter, inches	5
Inside Diameter, inches	2¼
Width, inches	1¼



Size 1AMG

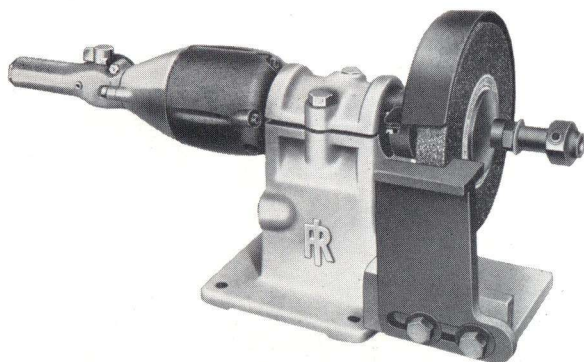
STANDARD EQUIPMENT

No. 27 Surface Hub Nut Wrench
No. A166 Wheel Head Complete
No. 380 Oil Chamber Plug Wrench
No. 478 Grease Plug Wrench

OPTIONAL EQUIPMENT

No. A183 Rotating Head Complete
ACCESSORIES furnished only when specified at no extra cost.
No. 130 Hose Whip (8 ft. of ¾" hose complete with fittings)
No. 228 Grease Gun

Ingersoll-Rand Series 4B Bench Grinders are standard portable air grinders equipped with special bracket for bench mounting. Designed especially for dressing Carset Bits in the field, they are also ideally suited for general off-hand grinding.



Size 4B31
Bench Grinder

Size	Standard Equipment
4B31	No. 982-8" Wheel Guard No. 37-8" Vitrified Wheel (8" x 1" x 5/8")
4B41	No. 962-6" Wheel Guard No. 36-6" Vitrified Grinding Wheel (5" x 1" x 5/8")
★4B45	No. 982-8" Wheel Guard No. 37-8" Organic Bonded Grinding Wheel (8" x 1" x 5/8")
4B60	No. 962-6" Wheel Guard No. 37-6" Organic Bonded Grinding Wheel (6" x 1" x 5/8")

★No. 962 Wheel Guard and No. 37A-5" Vitrified Grinding Wheel are available as Optional Equipment for the Size 4B45 only.

When specified by part name and number, the following wrenches are furnished at no extra cost:

No. 151 Centering Reamer Chuck
No. 478 Hexagon Wrench (5/16" (8 mm) across flats)
No. 426 Hexagon Wrench (5/32" (3 mm) across flats)
No. 562 Hexagon Wrench (3/16" (5 mm) across flats)
No. 579 Hexagon Wrench (7/16" (11 mm) across flats)

Size	Speed, r.p.m.	Weight		Length, Overall		Diameter Arbor, inches	Wheel Diameter, inches		Size Hose Recom- mended, inches	Hose Con- nec- tion Pipe Tap, inches
		pounds	kg.	inches	mm		Vitrified	Organic		
4B31	3100	58½	25.54	26⅞	683	5/8-11	8	..	†¾	½
4B41	4100	58½	25.54	26⅞	683	5/8-11	6	..	†¾	½
4B45	4500	58½	25.54	26⅞	683	5/8-11	5	8	†¾	½
4B60	6000	58½	25.54	26⅞	683	5/8-11	4	6	†¾	½

†A whip of ½" hose up to 10 ft. long can be used without impairing performance.



Size 4K Shank Grinder is designed for squaring the face of rock drill, paving breaker and tie tamper steels, chisel shanks, etc. Squaring the faces of these steels assures a full-area blow, longer life of the piston and steel, and faster drilling or cutting speeds.

A No. 37A 6" diameter flared cup-type Organic Bonded Wheel 2" thick, with a 1½" arbor hole is furnished as standard equipment. This Shank Grinder can also be furnished with a No. 137 8" diameter Organic Gumming Wheel ¾" wide for increasing the blowing clearance in the center of worn "Jackbits" as well as increasing the chip clearance between the wings of the "Jackbit".

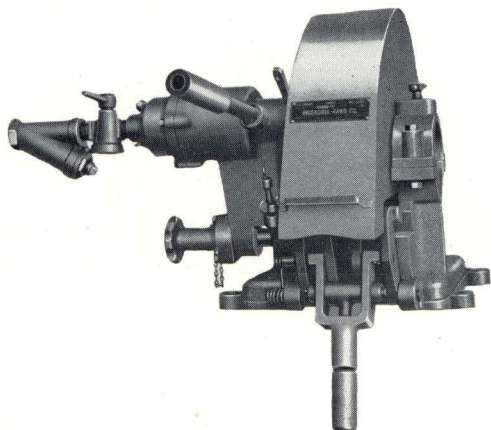
A Countersinking bit is located in the center of



Size 4K Shank Grinder

Size 500 Drill Steel Cutter and Shank Grinder is designed to handle two specific applications:

For cutting drill steel a No. 136 12" x ¾" x ¾" Organic Cut-Off Wheel is used. The steel is rigidly clamped on both sides of the wheel in a double vise with adjustable toggle-type operating lever. The double clamping prevents pinching as the wheel cuts through. The toggle arrangement insures rigid holding of the steel and also permits instant opening of the vise. A steel wheel guard completely covers the wheel and work. A ⅞" (22 mm) steel can be cut through in 2 seconds.



Size 500 Drill Steel Cutter and Shank Grinder

the wheel hub for removing burrs from the hole in the hollow drill steel.

Specifications

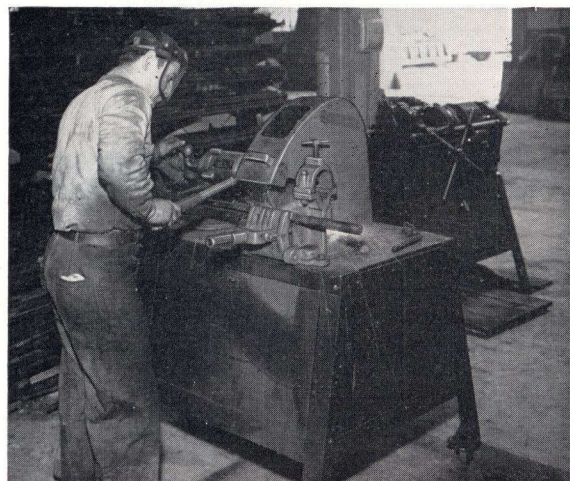
Weight, lbs.	57½
Weight, kg.	25.08
Length Overall, inches.	25¼
Length Overall, mm.	641
Speed, rpm.	4500
Base Size, inches.	4 x 10
Base Size, mm.	102 x 254
Size Hose Recommended, inches.	¾
Size Hose Connection, inches.	¾



For squaring up pistons and drill steel shanks a No. 37A 6" x 2" Flared-Cup-Type Organic Wheel with 1½" arbor hole is used. The drill steel shank is clamped in a V-Block, and the wheel is passed back and forth across the face. Usually only a few passes are required to provide a true, full area striking face.

SPECIFICATIONS

Weight, lbs.	175
kg.	79.38
Length, inches.	33⅞
mm.	860
Width, inches.	30
mm.	762
Height, inches.	18½
mm.	470
Speed, rpm.	4800
Size Hose Recommended, inches.	1
Size Hose Connection, inches.	1



Air Starters

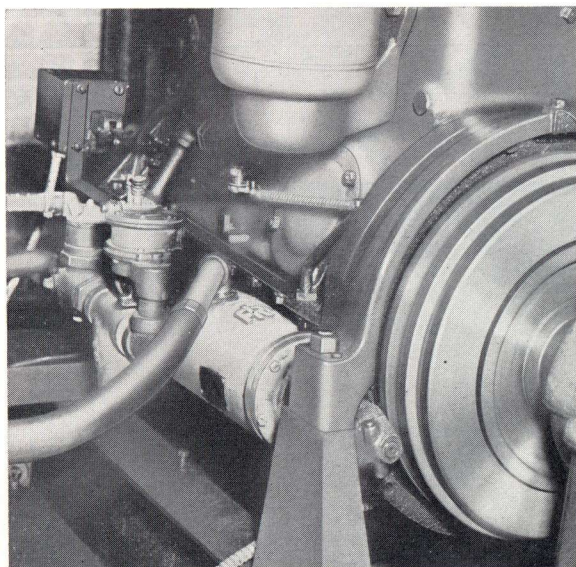
Ingersoll-Rand Air Motors

For dependable starting of gas and diesel engines in all kinds of weather and atmospheric conditions, users are replacing electric and gasoline starting motors with Air Starters.

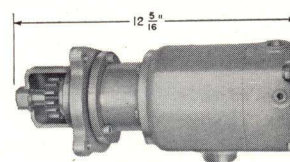
The Ingersoll-Rand Air Starter consists of a Multi-Vane power unit and a Bendix Drive. This assembly is flange mounted on the flywheel housing of the engine.

Ingersoll-Rand has available four sizes of Air Starters, Sizes 3BM, 5BM, 10BM and 20BM. These Starters are available in various models designed to meet the requirements of most standard engines. Size 3BM is furnished in thirty-one models, Size 5BM is furnished in fifteen models, Size 10BM in fifteen models and Size 20BM in seven models. Other models will be quoted if required. Specifications for the various models are listed on the reverse side of this sheet.

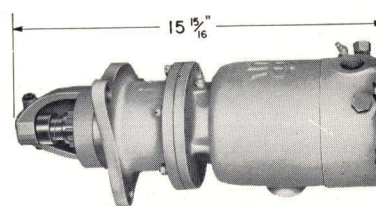
When requesting information on these units please advise, in addition to size, displacement and manufacturer of the engine, the type of fuel used and the model and specification number and manufacturer of the electric or gasoline starter normally used on the engine.



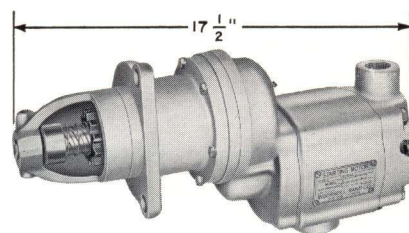
Size 5BM Model A12RH3 Air Starter



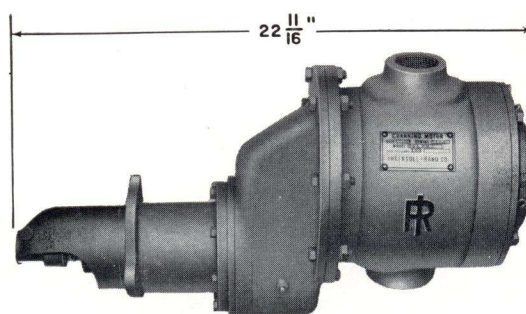
Size 3BM



Size 5BM



Size 10BM



Size 20BM

For further detailed information on correct models for all engines write for the Air Starter Bulletin, Form 5094F.



SPECIFICATIONS

Average Air Consumption per start: All Models Size 3BM—2-6 cu. ft. (.056-.169 cu. meters); All Models Size 5BM—2-6 cu. ft. (.056-.169 cu. meters) All Models Size 10BM—3-7 cu. ft. (.084-.198 cu. meters); All Models Size 20BM—12-16 cu. ft.

(.339-.453 cu. meters). Actual air consumption per start is very small. An 11 cu. ft. (.311 cu. meters) receiver provides sufficient air capacity for several starts. Duration of cranking time can be increased by increasing receiver capacity.

Model	Wgt.		Maximum HP			Maximum Torque Foot Pounds/ Meter kg.			Bendix Pinion Speed at Maximum HP r.p.m.			Inlet Conn. Pipe Tap, Inches	Size Hose Recom., Inches
			Air Pressure, psi At the Motor			Air Pressure, psi At the Motor			Air Pressure, psi At the Motor				
	lbs.	kg.	80	90	100	80	90	100	80	90	100		

SIZE 3BM

All Models	20	9.07	2.5	3	3.4	17.3/2.39	19.5/2.70	21.6/2.99	1610	1670	1720	½	½
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Model	Wgt.		Air Pressure, psi At the Motor			Air Pressure, psi At the Motor			Air Pressure, psi At the Motor			Inlet Conn. Pipe Tap, Inches	Size Hose Recom., Inches
	lbs.	kg.	90	120	150	90	120	150	90	120	150		

SIZE 5BM

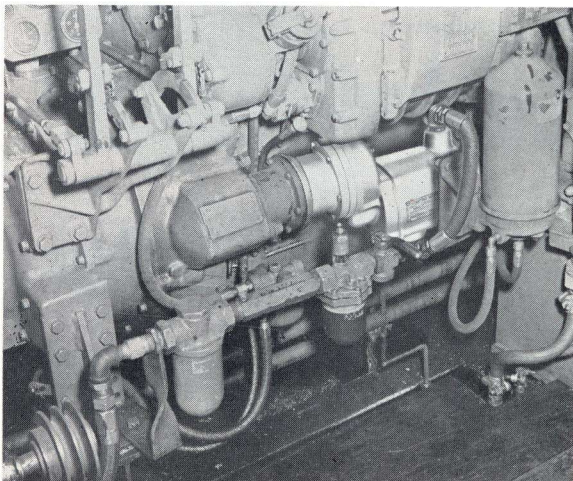
All Models	35	15.87	5.0	7.1	9.2	29/4.01	38.5/5.32	48/6.64	1860	1980	2060	¾	¾
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SIZE 10BM

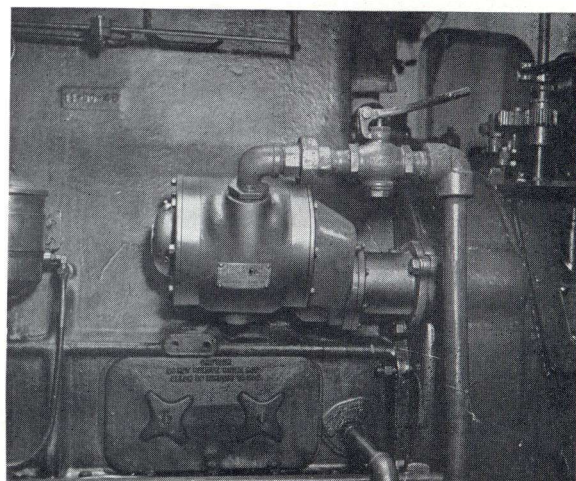
All Models	38	17.24	13	18.4	23.9	53/7.33	71/9.82	88/12.17	2200	2340	2440	1	1
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SIZE 20BM

Models A21	115	52.16	24	34	44	86/11.89	118/16.32	146/20.19	2580	2820	3050	1½	1½
Models B41	115	52.16	24	34	44	130/17.98	185/25.58	235/32.48	1600	1750	1900	1½	1½
Models D62	177	80.29	24	34	44	205/28.34	272/37.60	340/47.01	1010	1105	1200	1½	1½



Size 10BM Air Starter Model B21LH-11 with lubricator and filter assembly mounted on a General Motors 4-71 Diesel.



This 20BM Air Starter Model B41RH-1 is installed on a Buda 6DCS-MR2505 Diesel on a tug boat, and can be counted on where sure starting is a must.

Size 10BMP Air Starter

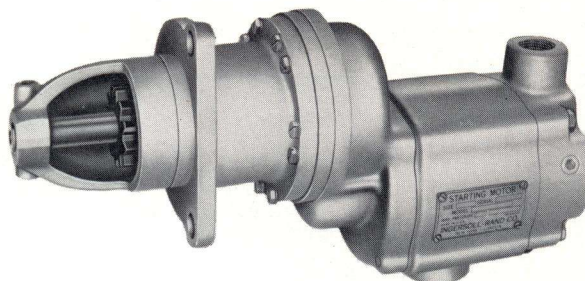
**Ingersoll-Rand
Air Motors**

The new Size 10BMP Air Starter incorporates an entirely new concept in design, which features complete engagement of the Bendix Pinion with the flywheel prior to engine starting. This revolutionary design offers several outstanding advantages. . .

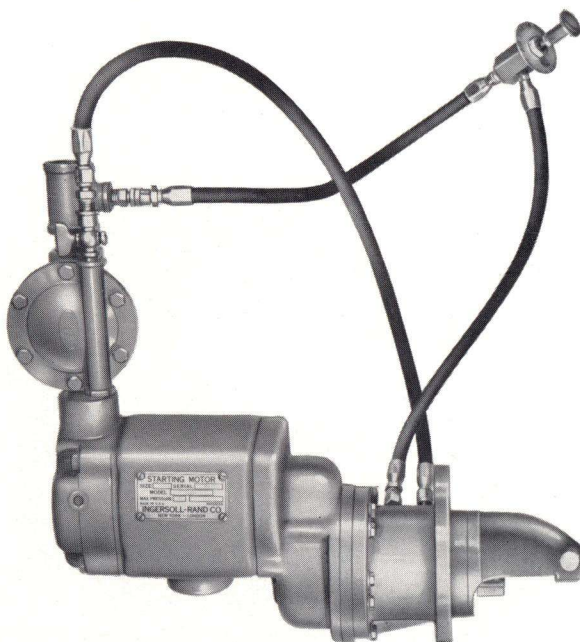
- . ends ring gear slippage and tooth damage.
- . eliminates sticking pinion caused by coagulating grease during cold weather.
- . eliminates slow starts and other cold weather troubles.

Size 10BMP is particularly advantageous in the cold weather starting of diesel engines as false starts do not cause disengagement of the Bendix pinion. With this new design the pinion can be held in engagement until the engine has started and is running under its own power.

Size 10BMP is also ideal for starting remote or automatic controlled diesels and standby generators. An Ingersoll-Rand Air Starter on your engine can mean faster starts, less maintenance, no expensive batteries, no power loss in cold weather and less weight. For detailed information on correct models for all engines write for Air Starter Selection List, Form 5906.



Size 10BMP . . . for diesels from 400 to 2300 cu. in. . . . for carbureted engines from 800 to 4600 cu. in.



Size 10BMP equipped with Relay Valve and Control Valve.

SPECIFICATIONS

(performance figures are at 90 psi or 6.3 kg/cm² air pressure)

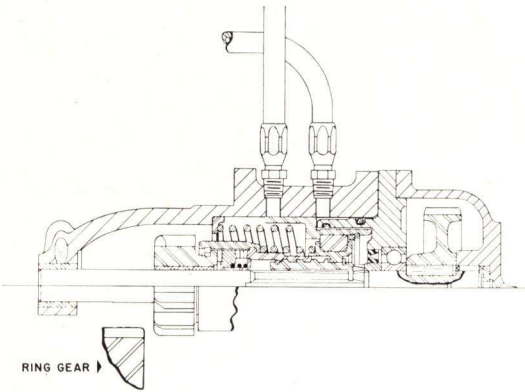
Overall Length, inches	17½
millimeters	445
Weight, lbs.	40
kilograms	18.16
Maximum Horsepower	13
Speed at Maximum Horsepower, rpm	2200
Maximum Torque, foot lbs.	53
meter kilograms	7.33
Hose Connection, Pipe Tap, inches	1
Size Hose Recommended, inches	1



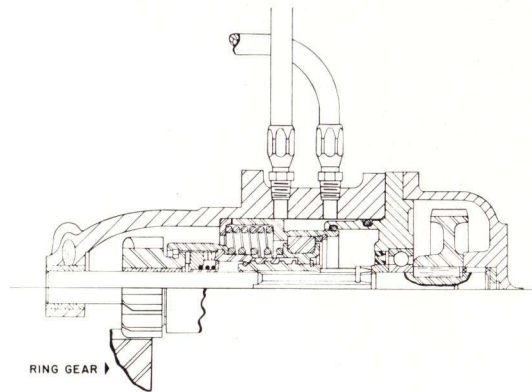
here's how the 10BMP works.

I-R's revolutionary design fully engages the Bendix pinion with the ring gear BEFORE air enters the air motor. This is accomplished by using a compact, built-in air cylinder in the Bendix housing. A push-button starter control valve admits air to

the cylinder and forces the Bendix pinion ahead to fully engage the ring gear. Compressed air is then by-passed to an air starter relay valve which opens and admits air to the air motor. Bendix pinion remains fully engaged until the starter control valve is closed.



Bendix Pinion Disengaged



Bendix Pinion Engaged.

ACCESSORIES

(Available at no extra cost)

No. A267 Air Strainer Assembly

No. A635 Muffler Assembly

EQUIPMENT

(Available at extra cost)

No. 615 Air Starter Relay Valve

No. 616 Relay Valve Nipple

No. 617 1" x 1" x 1/4" Tee

No. 618 Starter Control Valve

No. 620 Relay Valve Hose

No. 620 Control Valve Hose

No. 621 Control Valve Hose Adapter (1/8" male
pipe thread)

No. 622 Hose Adapter (1/4" male pipe thread)

Air-Tool Accessories

Ingersoll-Rand Accessories

Shown on the following sheets are standard air-tool accessories that are recommended for use with Ingersoll-Rand Air Tools. These accessories are the

result of research and testing that has been carried on to provide the equipment best suited for the most efficient operation of our tools.

AIR HOSE

Heavy-Duty Hose

Heavy-Duty hose is made to meet the demand for a superior hose which will stand up under the severe usage generally encountered in pneumatic tool work.

The inner tube is of high-quality stock, possessing oil and heat-resisting qualities.

The outer cover is a tough, resilient stock that will resist external wear to an unusual extent.

The Heavy-Duty hose can be supplied in 25 and 50 foot lengths and in the following sizes: $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1".

Lightweight Flexible Hose

This hose is lighter-in-weight and much more flexible than Heavy-Duty hose. Because of its lighter weight and extreme flexibility it is particularly convenient for use as short "whips" at the tool. We recommend the use of Heavy-Duty hose for "Feeders" with an eight to twelve foot length of the Lightweight hose as a "whip".

Lightweight Flexible Hose is carried in stock in six sizes— $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ ".

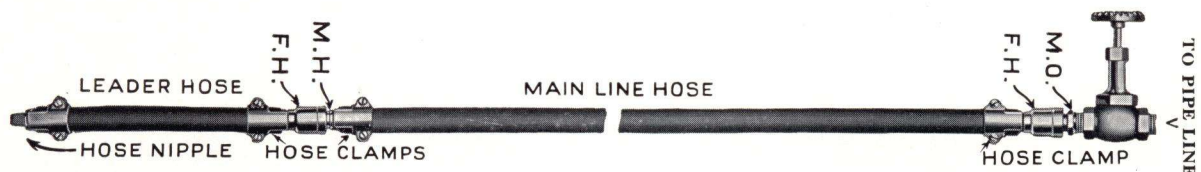
HOSE COUPLINGS

All $\frac{1}{2}$ " and $\frac{3}{4}$ " coupling ends are interchangeable; that is, a male coupling end of either size may be mated with a female coupling end of the other size.

$\frac{1}{2}$ " and $\frac{3}{4}$ " coupling ends **cannot** be mated directly with 1" coupling ends. When such a connection is desired, the Style CA Coupling Adapter must be used (see back of sheet).

Gaskets for the $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " Couplings are interchangeable. The 1" Coupling takes a larger Gasket.

To avoid blowing the rubber gasket out of the female coupling, when blowing out the hose, couplings should always be arranged so that the air flows out of the male and into the female coupling as shown by the illustration below.





Type A Air Hose Couplings



This improved hose coupling (shown above) is designed for air-tool service. It is a simple and sturdy coupling, able to stand lots of wear and abuse without affecting its service. It is quick

acting and will not jam, stick or leak. It consists of two parts, known as male and female, which may be connected by making a quarter turn as the two halves are pushed together.



Style MO—male coupling end with an outside pipe connection. Sizes $\frac{1}{2}$ " , $\frac{3}{4}$ " and 1" standard pipe thread.



Style FH—female coupling end with ribbed shank to insert into hose. Sizes to fit $\frac{1}{2}$ " , $\frac{3}{4}$ " and 1" hose.



Style MH—male coupling end with ribbed shank to insert into hose. Case hardened and rust proofed steel. Sizes to fit $\frac{1}{2}$ " , $\frac{3}{4}$ " and 1" hose.



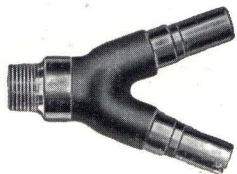
Style FO—female coupling end with an outside thread pipe connection. Sizes $\frac{3}{8}$ " , $\frac{1}{2}$ " , $\frac{3}{4}$ " and 1" standard pipe thread.



Style MY—A "Y" fitting with a female coupling on the main stem and male couplings on the "Y" branches. Made in two sizes, as follows:—

$\frac{3}{4}$ " Main stem fits $\frac{1}{2}$ " and $\frac{3}{4}$ " male couplings; branches fit $\frac{1}{2}$ " and $\frac{3}{4}$ " female couplings.

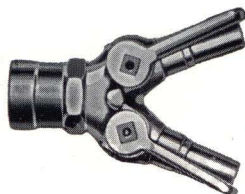
1"x $\frac{3}{4}$ " Main Stem fits 1" male couplings; branches fit $\frac{1}{2}$ " and $\frac{3}{4}$ " female couplings.



Style MOY—A "Y" fitting with an outside thread pipe connection on the main stem and male couplings on the "Y" branches. Made in two sizes as follows:—

$\frac{3}{4}$ " Main Stem $\frac{3}{4}$ " outside pipe thread; branches fit $\frac{1}{2}$ " and $\frac{3}{4}$ " female couplings.

1"x $\frac{3}{4}$ " Main Stem 1" outside pipe thread; branches fit $\frac{1}{2}$ " and $\frac{3}{4}$ " female couplings.



Style MDY—same as the MY coupling except that it is fitted with two valves with which the air going to the two male branches can be separately regulated. Made in one size that can be used with either $\frac{1}{2}$ " or $\frac{3}{4}$ " couplings.

Style MDOY—Same as the MDY coupling except with a 1" outside pipe thread on the main stem.



Style CA—A Coupling Adapter with 1" female coupling end and $\frac{3}{4}$ "— $\frac{1}{2}$ " male coupling end. Allows 1" male end to be attached to either $\frac{3}{4}$ " or $\frac{1}{2}$ " female end.

Air-Tool Accessories

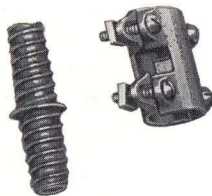
Ingersoll-Rand Accessories

Hose Nipples



Ingersoll-Rand Hose Nipples are made with a ribbed shank which grips the inside of the hose when inserted. Most sizes are furnished with a groove to take a hose clamp. All sizes are threaded with a standard pipe thread. They can be obtained in the sizes listed below.

Part No.	Size
46	3/16" hose to 1/8" pipe
47	3/16" hose to 1/4" female pipe
46	1/4" hose to 1/8" pipe
46	1/4" hose to 1/4" pipe
47	1/4" hose to 1/4" female pipe
46	5/16" hose to 1/8" pipe
46	5/16" hose to 1/4" pipe
387	5/16" hose to 3/8" pipe
47	5/16" hose to 3/8" female pipe
14	3/8" hose to 1/4" pipe (grooved)
146	3/8" hose to 1/4" pipe (not grooved)
46	3/8" hose to 3/8" pipe
147	3/8" hose to 3/8" female pipe
46	1/2" hose to 1/4" pipe
46	1/2" hose to 3/8" pipe
455	1/2" hose to 1/2" pipe
46	3/4" hose to 3/8" pipe
46	3/4" hose to 1/2" pipe
581	3/4" hose to 3/4" pipe
46	1" hose to 3/4" pipe
CB-10-S	1" hose to 1" pipe
CN-15-S	1 1/2" hose to 1 1/2" pipe
CN-20-S	2" hose to 2" pipe

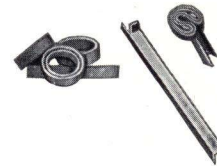


Hose Mender Insert and Clamps
made for 1/2", 3/4" and 1" hose.

I-R Type "A" Hose Clamps



Part No.	For Lightweight Hose, inches	Part No.	For Heavy Duty Hose, inches
L34-3/8	3/8	34 1/2	1/2
L34-1/2	1/2	34 3/4	3/4
L34-3/4	3/4	34-1	1

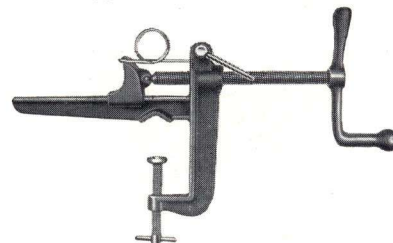


No. 4 Hose Coupling Gaskets and
No. 7 Gasket Inserting Tool.
(for 1/2", 3/4" and 1" female couplings)

"Stayput" Wire Hose Clamps made for 1/2", 3/4" and 1" hose.

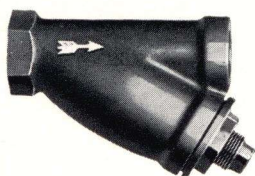


Assembly Tool for applying "Stayput" Wire Hose Clamps.





Air Strainer, Part No. A267



A sturdy, efficient air strainer for use in pipe or hose lines ahead of tools. The strainer is of ample size to permit free passage of air. It can be cleaned easily by removing the plug from the strainer cap and turning air on momentarily. It is available in $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ " and $1\frac{1}{2}$ " pipe sizes with female pipe threads in both inlet and outlet, and in 1" x $\frac{3}{4}$ " size with $\frac{3}{4}$ " female inlet and 1" male outlet.



BG7—Air Gun Fitted with Ribbed Stem for $\frac{3}{8}$ " Hose or BG8—Air Gun Fitted with $\frac{1}{4}$ " Reducing Bushing.



Part No. 1160. Pipe Line Valve.
 $\frac{3}{4}$ " or 1"—Specify Size

Hansen Hose Couplings

Two series of Hansen Hose Couplings are available from Ingersoll-Rand. Series 3000 have $\frac{1}{4}$ " and $\frac{3}{8}$ " thread sizes; Series 5000 have a $\frac{3}{8}$ " and $\frac{1}{2}$ " thread size. Washers are included with the purchase of all Hansen Sockets. The table below shows the various sizes available as well as a description of the part and where it can be used with I-R Equipment.

Hansen Couplings—5000 Series





Part No.	Description	Where Used	
52	Coupling Plug on one end; $\frac{3}{8}$ " male pipe thread on the other end.	Screws directly into $\frac{3}{8}$ " pipe thread air inlet in Tool, or screws into Female Hose Nipple tapped $\frac{3}{8}$ " pipe thread.	 Male Plug
54	Coupling Plug on one end; $\frac{1}{2}$ " male pipe thread on the other end.	Screws directly into $\frac{1}{2}$ " pipe air inlet in Tool, or screws into Female Hose Nipple tapped $\frac{1}{2}$ " pipe thread.	
5100	Coupling Socket in one end; $\frac{3}{8}$ " male thread on the other end.	Screws into manifold or air line and couples to Hansen Male Plugs.	 Male Socket
5300	Coupling Socket in one end; $\frac{1}{2}$ " male thread on the other end.	Screws into manifold or air line and couples to Hansen Male Plugs.	
5000	Coupling socket in one end; $\frac{3}{8}$ " female pipe thread in the other end.	Screws onto Male Hose Nipple with $\frac{3}{8}$ " pipe thread and used in conjunction with the No. 52 or 54 Hansen Male Plugs.	 Female Socket
5200	Coupling Socket in one end; $\frac{1}{2}$ " female pipe thread in the other end.	Screws onto Male Hose Nipple with $\frac{1}{2}$ " pipe thread and used in conjunction with the No. 52 or 54 Hansen Male Plugs.	
W5000	Rubber Washer	Fits any 5000 Series Hansen Coupling Socket.	 Coupling Washer

Air-Tool Accessories

Ingersoll-Rand Accessories

(Hansen Hose Couplings Cont'd)

Hansen Couplings—3000 Series






Part No.	Description	Where Used	
12	Coupling plug on one end; 1/8" male pipe thread on the other end.	Screws directly into air inlet on— any tool having a 1/8" female pipe thread.	
10	Coupling plug on one end; 1/4" male pipe thread on the other end.	Screws into I-R No. 47 Female Hose Nipple on any tool so equipped or Screws directly into inlet on any tool having a 1/4" female pipe thread.	 <p>Hansen Male Plug</p>
14	Coupling plug on one end; 3/8" male pipe thread on the other end.	Screws into I-R No. 47 Female Hose Nipple on any tool so equipped.	
3100	Coupling socket in one end; 1/4" male pipe thread on the other end.	Screws into manifold or air line and couples to Hansen Male Plugs	 <p>Hansen Male Socket</p>
3300	Coupling socket in one end; 3/8" male pipe thread on the other end.	Screws into manifold or air line and couples to Hansen Male Plugs	
2800	Coupling socket in one end; 1/8" female pipe thread in the other end.	Screws onto No. 46 Male Hose Nipple. Used in conjunction with No. 12 Male Plug for cou- pling and uncoupling hose at inlet of tool.	
3000	Coupling socket in one end; 1/4" female pipe thread in the other end.	Screws onto manifold or air line and couples to Hansen Male Plugs	 <p>Hansen Female Socket</p>
3200	Coupling socket in one end; 3/8" female pipe thread in the other end.	Screws onto manifold or air line and couples to Hansen Male Plugs	
W3000	Rubber Washer	Fits any of the above listed Hansen Coupling Sockets	 <p>Hansen Coupling Washer</p>




Universal Hose Couplings

Ingersoll-Rand also supplies Universal Hose Couplings ranging from $\frac{1}{4}$ " to 1" in size. They can be furnished in either malleable iron or bronze and will handle many diversified hook ups. Gaskets are included with the purchase of all Universal Couplings.

Universal

SYMBOL		Size, Inches	Name of Part	
Malleable	Bronze			
UH-25-M UH-37-M UH-50-M UH-75-M UH-100-M	UH-25-B UH-37-B UH-50-B UH-75-B UH-100-B	$\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{3}{4}$ " 1"	"Safety Lock" Universal Hose-End	
UM-25-M UM-37-M UM-50-M UM-75-M UM-100-M	UM-25-B UM-37-B UM-50-B UM-75-B UM-100-M	$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1	Universal Male Pipe Threaded End	
UF-25-M UF-37-M UF-50-M UF-75-M UF-100-M	UF-25-B UF-37-B UF-50-B UF-75-B UF-100-B	$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1	Universal Female Pipe Threaded End	
UW-300-M	UW-300-B	$\frac{1}{4}$ to 1 incl.	Universal 3-Way	
UD-301-M	UD-301-B	$\frac{1}{4}$ to 1 incl.	Universal Dead End	

Symbol	Size	Name of Part	
UG-100	$\frac{1}{4}$ " to 1" inclusive	Universal Coupling Gasket	

Oils and Greases and Accessories

Ingersoll-Rand Accessories

INGERSOLL-RAND has tested innumerable kinds of greases and oils, practically all of which are excellent lubricants, but has found, of the entire number, only a few meeting the special requirements of pneumatic tools.

In order that the users of Ingersoll-Rand tools may get the best possible results from them, we offer approved lubricants as follows:

Ingersoll-Rand Pneu-Lube Light Oil — No. 10 (Contains Corrosion Inhibitor) . . . This oil has rust and corrosion resistant properties besides acting as an excellent lubricant. Recommended for lubricating Riveters, Rivet Busters, Chippers, Scalers, Sand Rammers, Backfill Tampers, Calking Machines, Tie Tampers (not equipped with grease fitting), Coal Picks, Core Breakers, Clay and Trench Diggers and Holders-On; the motors of 000A2, 000B2, 00A2, 00B2, 0A1 and 0B1 Drills, 000A2, 000B2, 00A2, 00B2, 0A2 and 0B2 Screw Drivers, 5000A, 5000B, 5020 and 502B Impacttools and 00 and 0 Grinders; the Arbor Bearing Oiler Wick of 00, 0 and 1 Grinders.

Ingersoll-Rand Pneu-Lube Medium Oil — No. 50 (Contains Corrosion Inhibitor) . . . Recommended for lubricating motors of all Overhead Air Motor Hoists, Single and Double Drum Utility Air Hoists, Stationary Air Motors, and Geared Stationary Air Motors; motors of all Multi-Vane Grinders (except 00 and 0); motors of all Multi-Vane Drills (except 000, 00, 0 and 1) and Wrenches; Impacttool motors (except 5000A, 5000B, 5020 and 502B); Sump Pump motors, Concrete Vibrator motors, S-12 Saw motor and for general lubricating purposes.

Ingersoll-Rand Light Gear Grease — No. 25 . . . Recommended for lubricating the high-speed gears of Multi-Cycle Electric Tools.

Ingersoll-Rand Light Grease — No. 31 . . . Recommended for lubricating the gears of Multi-Vane Drills, Wrenches and Impacttools and S-12 Saw; the bearings of Multi-Vane Grinders (except 00 and 0). (May be used as substitute for Ingersoll-Rand Gear Grease No. 70 in gears of Overhead Hoists [except AIR-BLOC], Utility Air Hoists and Geared Stationary Air Motors).

Ingersoll-Rand Light Worm Gear Grease — No. 65 . . . Recommended for lubricating the gearing of AIR-BLOCS.

Ingersoll-Rand Heavy Gear Grease — No. 70 . . . Recommended for lubricating the gearing of all Electric Hoists, Sizes A, AC, B, BC and C Overhead Hoists, Single Drum Utility Air Hoists, and Geared Stationary Air Motors when exposed to average temperatures (40°F and above).

Ingersoll-Rand Medium Gear Grease — No. 75 . . . Recommended for lubricating the gearing of all Two and Three Drum Utility Air Hoists and Sizes D, D6, E and G Overhead Hoists when exposed to average temperatures and for the gearing of all other hoists (except AIR-BLOC) when exposed to temperatures under 40°F.

Ingersoll-Rand Pump Grease — No. 80 . . . Recommended for lubricating the bearings of Sump Pumps.

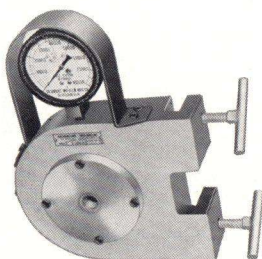
Ingersoll-Rand Impacttool Grease — No. 100 . . . Recommended for lubricating the hammer jaws, anvil jaws and the entire impact unit of all Ingersoll-Rand Impacttools, also the gears of Sizes 2U, 4U-SD, 5U-HD, 5UT, 8U and 34U Universal Electric Impacttools.

Ingersoll-Rand Vibrator Grease — No. 110 . . . Recommended for lubricating the bearings of all Ingersoll-Rand Concrete Vibrators.

Oils are put up in 1-gallon and 5-gallon cans, and 54 gallon drums.

Greases in 5 and 10-pound cans and 120-pound drums.

Pump grease, Impacttool Grease and Vibrator Grease are also packed in 1-5 and 10-pound cans.



IMPACTOOL CALIBRATORS

Part No.	Weight		Overall Dimensions		Bolts Suited For			
					Diameter		Minimum Length	
	pounds	kg.	Inches	mm	Inches	mm	Inches	mm
850J	35	15.88	11x15x3	279x381x76	No. 10	4	3/4	19
					1/4	6	7/8	22
					5/16	8	1 1/8	29
					3/8	10	1 1/4	32
					7/16	11	1 1/2	38
					1/2	13	2	51
850M	50	22.68	12x14x5	305x356x127	5/8	16	2 1/2	64
					3/4	19	2 1/2	64
					7/8	22	2 1/2	64
					1	25	2 1/2	64
					*1 1/8	29	3 7/8	98
					*1 1/4	32	3 7/8	98

*These sizes require the use of the No. 854M Extra High Pressure Gauge (0 to 110,000 lbs.)



I-R AIR LINE LUBRICATOR

The I-R Air Line Lubricator keeps all moving parts of the tool constantly lubricated thereby reducing frictional losses and wear.

This lubricator is made in two sizes, pint and half pint and will atomize and feed any lubricating oil or liquid grease which will flow at the temperature at which the lubricator is to operate. A

spring-loaded metering valve is easily adjusted to provide exactly the right amount of atomized lubrication.

The lubricator can be used in either pipe or hose lines where constant lubrication is desired. It will operate in any position and either end of the lubricator can be connected to the air supply.



IRO-16

1 pint capacity



IRO-8

1/2 pint capacity

Use of the Ingersoll-Rand IRO-16 Air Line Lubricator is recommended with the following tools:

DRILLS:—All Series 3, 33, 4, 44, 5, 55; Series 30, 40, and R44 Angle Drills.

IMPACTTOOLS:—Sizes 577, 588 and 599.

GRINDERS:—All Series 3 and 4; JA3 and 500.

PUMPS:—Sizes 250 and 35.

DIGGERS:—All Sizes.

Use of the Ingersoll-Rand Type IRO-8 Air Line Lubricator is recommended with the following tools:

DRILLS:—All Sizes 1; Sizes 1AT and 1ATR Tapping Machines; all Size 2, 2X and 22; Size 20 Close-Quarter Drill.

ANGLE WRENCHES:—All Series 18, 28 and 38.

GRINDERS:—Sizes 1S120, 1L120, 1G120, 2S60, 2G60, 2S72, 2G72, 2S90, 2G90 and 2F.

IMPACTTOOLS:—Sizes 808, 810, 5100, 514, 514V, 518, 834, 834S, 844, 5340T, 5340TV and 538.

VIBRATORS:—Sizes 10V and 2V.

FILTER

LUBRICATOR



VITALIZER UNIT

Part No.	Name of Part	Size (Pipe Tap)	Capacity
30-41-2L	Norgren Micro-Fog Lubricator	1/4"	1/2 Pt. Oil for all Sizes
30-41-3L	Norgren Micro-Fog Lubricator	3/8"	
30-41-4L	Norgren Micro-Fog Lubricator	1/2"	
30-41-6L	Norgren Micro-Fog Lubricator	3/4"	
30-41-8L	Norgren Micro-Fog Lubricator	1"	
30AE-2	Norgren Filter	1/4"	
30AE-3	Norgren Filter	3/8"	
30AE-4	Norgren Filter	1/2"	
30AE-6	Norgren Filter	3/4"	
30AE-8	Norgren Filter	1"	
83DB-2B	Norgren Vitalizer Unit	1/4"	1/2 Pt. Oil for all Sizes
83DB-3B	Norgren Vitalizer Unit	3/8"	
83DB 4B	Norgren Vitalizer Unit	1/2"	
83DB 6B	Norgren Vitalizer Unit	3/4"	
83DB 8B	Norgren Vitalizer Unit	1"	

The above Norgren Lubricators, Filters and Vitalizer Units are equipped with transparent bowls.

Hose Hook-ups

Ingersoll-Rand Air Tools

If certain fundamentals are neglected, if simple precautions are not taken, substantial power losses will occur between compressor and tools. A large share of these losses is apt to result from the use of improper hose and fittings, but they can be virtually eliminated at small expense by changing hose hook-ups. Hose couplings, nipples, and menders that are not suitable restrict the air flow and reduce the working pressure at the tool. To emphasize this, the effect of various hose arrangements on the performance of a heavy-duty grinder is graphically illustrated in Figure 1. Obviously, for best performance, a $\frac{3}{4}$ -inch hose should be utilized with a tool of this size—one consuming 55 to 65 cfm. at 90 pounds pressure. The curves also indicate that a 12½-foot whip of $\frac{1}{2}$ -inch hose may be employed in conjunction with a longer $\frac{3}{4}$ -inch hose without serious loss of power. On many jobs long lengths of $\frac{1}{2}$ -inch hose are commonly in service, but the loss of power (25 per cent and more) is a high price to pay for any minor advantages gained by the use of the smaller hose. From the operator's standpoint, flexibility has in the past constituted an advantage, but with the introduction of highly flexible $\frac{1}{2}$ - and $\frac{3}{4}$ -inch-diameter hose, that advantage can no longer be claimed for it.

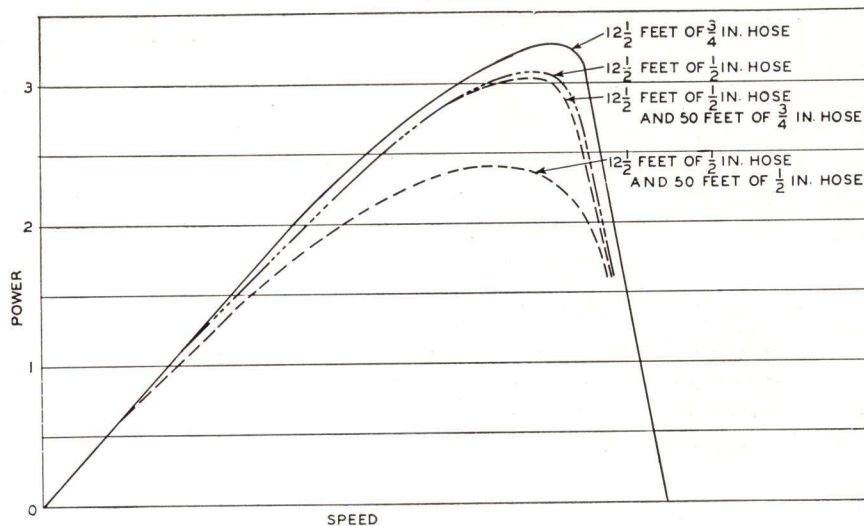


FIGURE 1

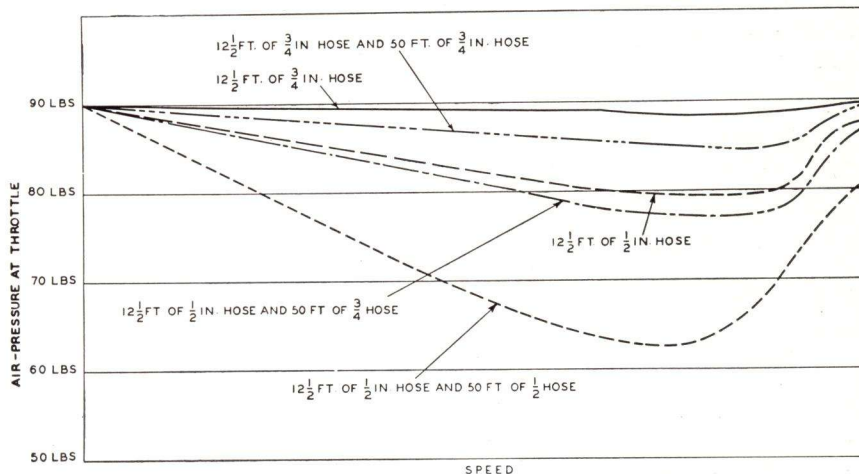


FIGURE 2

Corresponding curves indicating the pressure at the throttle have been plotted in Figure 2 and illustrate not only the actual drop from the 90-pound pressure maintained in the line but to what extent rate of air flow affects pressure drop. While a 12½-foot length of $\frac{1}{2}$ -inch hose may be used with a tool consuming 75 to 85 cfm., there will be a power loss of about 10 percent, compared with a similar length of $\frac{3}{4}$ -inch hose. Loss of pressure always means less work done by the tool.

In making a selection, the hook-up should be based on the air consumption of the tool when operating under full load—maximum horsepower. The figure will be found in the tabulation on the back of this sheet under the head-

ing Air Flow Cubic Feet Per Minute, and in line with it are various pressure drops. By choosing the acceptable drop for the tool in question it is possible to determine quickly the length and diameter of hose required.

In many layouts, much of the pressure drop is attributable to hose couplings, nipples, and menders. As the hole through these fittings is of necessity smaller than that in the hose, it is important to use fittings having the largest practicable inside diameter. Certain shops commonly standardize on $\frac{1}{2}$ -inch hose and equip all hose whips with $\frac{1}{2}$ -inch hose to $\frac{1}{4}$ -inch pipe nipples. Tools having air-inlet pipe taps larger than $\frac{1}{4}$ -inch must then be

(Continued on back of sheet)



Air Flow Cubic Feet Per Minute	10' of 1/4" Hose	8' of 5/16" Hose	10' of 3/8" Hose	12 1/2' of 1/2" Hose	25' of 1/2" Hose	50' of 1/2" Hose	12 1/2' of 3/4" Hose	25' of 3/4" Hose	50' of 3/4" Hose	50' of 1 1/2" Hose + 10' of 1/4" Hose	50' of 1 1/2" Hose + 10' of 5/8" Hose	50' of 1 1/2" Hose + 8' of 3/8" Hose	50' of 1 1/2" Hose + 12 1/2' of 1/2" Hose	50' of 3 1/2" Hose + 25' of 1/2" Hose	50' of 3 1/2" Hose + 12 1/2' of 3/4" Hose
	Pressure Drop—Pounds per Sq. In.—Based on 100 Pounds per Sq. In. Line Pressure														
10 to 11	5.0	.9								5.3	.7	1.4			
11 to 12	5.9	1.0								6.2	.8	1.6			
12 to 13	6.8	1.2	.4							7.2	.9	1.9			
13 to 14	8.0	1.4	.5							8.4	1.1	2.2			
14 to 15	9.3	1.6	.6							9.8	1.3	2.5			
15 to 16	11.0	1.9	.7							11.6	1.5	2.9			
16 to 18	14.0	2.4	.8							15.0	1.9	3.5	1.7		
18 to 20	19.6	3.0	1.0							21.4	2.4	4.5	2.0		
20 to 25		4.3	1.4	.7	1.0	1.3					3.5	6.4	2.6	1.3	
25 to 30		6.6	2.1	1.0	1.5	2.3					5.2	9.8	3.8	1.9	
30 to 35		9.5	3.1	1.3	2.1	3.6					7.3	13.7	5.3	2.6	
35 to 40		12.8	4.2	1.7	2.8	5.2					9.6	18.4	7.1	3.5	
40 to 50		19.3	6.3	2.4	4.1	8.0					14.0		10.4	5.2	1.8
50 to 60			9.6	3.7	6.3	12.2				21.8			16.0	7.8	2.3
60 to 70			13.5	5.3	9.0	17.4	.9	1.4	1.9				22.8	11.1	3.0
70 to 80			18.7	7.1	12.4		1.1	1.7	2.5					15.0	3.7
80 to 90			25.0	9.0	16.1		1.4	2.2	3.2					19.8	4.6
90 to 100				11.1			1.7	2.7	4.0						5.8
100 to 120							2.3	3.5	5.6						7.9
120 to 140							3.2	4.8	8.0						11.2
140 to 160							4.3	6.6	11.0						15.5
160 to 180							5.6	8.7	15.2						20.4
180 to 200							7.2	11.0							
200 to 220							9.0								

provided with reducing bushings if they are to be used with the existing hook-up. The error of this practice is evident.

The table below gives a comparison of the air passage areas of typical hose nipples for hammers, drills, grinders, etc. Examination of it will reveal that chipping hammers and similar percussion tools use less air than do rotary tools. For that reason a 1/2-inch hose to 1/4-inch pipe nipple designed for chipping hammers has a smaller hole than that

supplied for drills, grinders, etc. It will also be observed that the substitution of the 1/2-inch hose to 3/8-inch pipe nipple for the respective 1/2 inch hose to 1/4-inch nipple will, in the case of hammers, give an air passage with more than twice the area and in the case of rotary-driven tools approximately 40 per cent greater. This emphasizes one more phase of our original contention; namely, that improper hose and nipples reduce air pressure at the tool and lower the productive capacity.

COMPARISON OF AIR-PASSAGE AREAS OF TYPICAL HOSE NIPPLES

Tools	Nipple Size	Hole Diameter	Air Passage Area
Hammers.....	1/2-in. hose to 1/4-in. pipe	17/64 in.	0.055 sq. in.
Rotary*.....	1/2-in. hose to 1/4-in. pipe	11/32 in.	0.093 sq. in.
Rotary*.....	1/2-in. hose to 3/8-in. pipe	13/32 in.	0.130 sq. in.

*Drills, grinders, impacttools, etc.

Electric Tools

Ingersoll-Rand Electric Tools

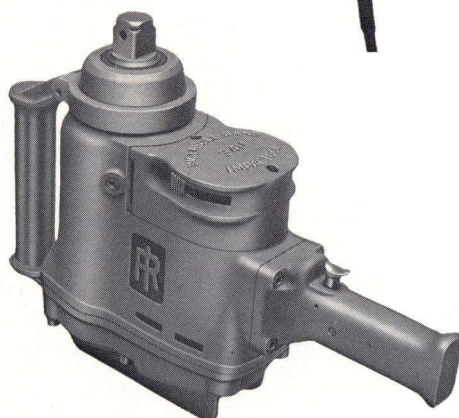
Universal Electric Impacttools Available For 110 or 220 Volts



Size U2



Size 5UT



Size 34U

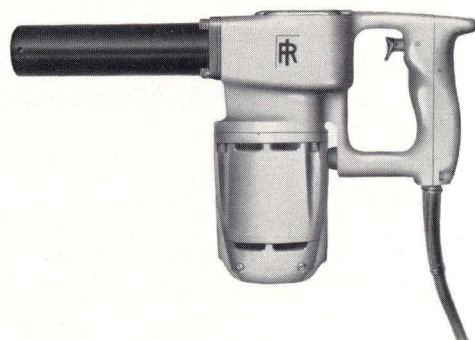
Sizes 2U, 4USD, 5UHD and 8U Impacttools are one hand operation "Multi-Purpose" Tools. They have proved to be a great time, money and labor saver to all tool owners. 90% of nut running time using old methods, can be saved by using a Size 2U, 4USD, 5UHD or 8U Impacttool. The "No Kick, No Twist" feature eliminates operator fatigue. In many automobile repair shops, on construction jobs and in industrial repair and maintenance shops, these tools have paid for themselves in less than one month.

Size 5UT "Torsion Bar" Torque Control Impacttool provides a fast, safe, easy and economical method of running nuts and bolts to a predetermined torque. Over-torquing of bolts is eliminated, as the tool automatically shuts-off when the preset torque is reached. Adjustable "Torsion Bars" provide torque control from 20 ft. lbs. (2.77 mkg) to 90 ft. lbs. (12.44 mkg).

The tool can be quickly converted to a standard Impacttool simply by removing the "Torsion Bar."

Size 34U is the most powerful Universal Electric Impacttool on the market today. It is designed for running nuts up to 1 1/4" (32 mm) bolt size, weighs 32 1/2 lbs. (14.74 kg) and is 10 3/16" (259 mm) long. Budd Wheel nuts, Spring U-bolt nuts and various other applications fall within its rated capacity. The adjustable handle and the compact construction give size 34U accessibility, especially on hard-to-get-at jobs. The combination of a Universal Motor and the famous Ingersoll-Rand Impact Unit make it a fast, powerful and economically operated tool.

Universal Electric Power Hammer Available for 110 or 220 Volts



Size H541U Model A

Size H541U Model A Power Hammer is a lightweight, powerful and efficient maintenance tool designed to handle the roughest jobs in various types of construction.

It will drill holes up to 1 1/8" (29 mm) in the toughest materials, break concrete, stone, macadam, etc.

The lightweight and compact design make this electric power hammer a natural for hard-to-get at jobs and overhead work.



"Multi-Cycle" Electric Tools

Available For 180 or 360 Cycle Current



Series D32

Twenty sizes of "Multi-Cycle" Electric Drills are available, differing in speed and capacity. The D32 Series has a drilling capacity up to $\frac{5}{16}$ " (8mm) while the D44 Series will drill up to $\frac{3}{8}$ " (10 mm).



Series C321

Ingersoll-Rand "Multi-Cycle" Screw Drivers are furnished with either the No. C32X21 or No. CX31 Screw Driver Attachment, both of which take $\frac{1}{4}$ " hex. shank bits and socket drivers. The No. C32X21 Attachment will drive free running screws from No. 2 to $\frac{1}{4}$ " (6 mm). The No. CX31 Attachment has a higher adjustable torque range and is recommended for driving self-tapping screws or for driving wood screws without preboring. Also available with C32XQ21 and CXQ31 Quick Change Screw Driver Attachments, or No. C32XM21 Magnetic Screw Driver Attachment.



Series N44

N44 Series "Multi-Cycle" Nut Runners and NA44 Series Angle Nut Runners are available in twelve sizes, both non-reversible and reversible. They are rated for applying and removing nuts or bolts from $\frac{1}{4}$ " (6 mm) to $\frac{5}{16}$ " (8mm) diameter. Incorporated in these tools is an adjustable cushion clutch which provides consistent, controlled torque to meet any application falling within the capacity of the tool.



Size W32E

Twenty sizes of "Multi-Cycle" Electric Impacttools ranging in capacity for nut running from $\frac{1}{4}$ " (6mm) to $\frac{3}{4}$ " (19mm) bolt size, are now available from Ingersoll-Rand. The combination of the high cycle motor and the powerful Ingersoll-Rand Impact Unit provides a fast economical run down of nuts. All tools are available in non-reversible and reversible models.



Size G57E

A complete line of Ingersoll-Rand "Multi-Cycle" Grinders, Buffers, Angle Sanders and a Polisher is now available. 32 sizes ranging in speeds from 1800 r.p.m. to 6000 r.p.m. will handle jobs in a field of almost unlimited applications.

Size J-10A Lightweight Jackhammer and Utility Tool

Ingersoll-Rand
Rock Drilling Equipment

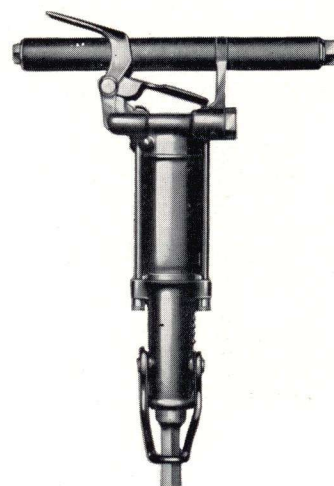
The J-10A is an extremely versatile and useful tool to have around any manufacturing plant or any contracting or construction job. It will quickly drill holes ($\frac{1}{4}$ " (6mm) to $1\frac{5}{8}$ " (41mm) in rock or concrete. Or it can be used for chipping, digging and is suitable as a tamper. The J-10A is light and yet powerful; it drills wet or dry, has automatic rotation and hole cleaning. With three interchangeable handles (Pistol grip, Center grip or T-type) it will save time and money on hundreds of jobs.

SPECIFICATIONS

Size J-10	Pistol Grip Handle	"T" Handle Grip Throttle	"T" Handle Jack-hammer Throttle
Weight, pounds	15	21	20
Length, inches	19	19	19
Shank Size, hex. length, inches	$\frac{7}{8} \times 3\frac{1}{4}$	$\frac{7}{8} \times 3\frac{1}{4}$	$\frac{7}{8} \times 3\frac{1}{4}$
Air Inlet, female pipe, inches	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$
Air Exhaust, female pipe, inches	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$
Size Air Hose Recommended (all handles)	Up to 25' long - $\frac{3}{8}$ "		
	Over 25' long - $\frac{1}{2}$ "		
Air Consumption	50 psi - 30 cfm		
	70 psi - 36 cfm		
	90 psi - 44 cfm		



J-10A with Pistol Grip Handle



J-10A with "T" Handle





Accessories For J-10A Utility Tool



Diamond Point Chisel



Moil Point



Tamping Pad



Flat Pick



Jackrods



Flat Chisel



Round Nose Chisel



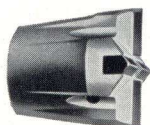
Star Drills



Carset Steels



Carset Steel and
Star Drill Adapters



Carset Bits

Shank Size-Round	Nom. Length	Symbol	Weight
$\frac{7}{8}$ " Round x $\frac{3}{4}$ "	13"	JTR4	1.87 lbs.

Moil point $\frac{7}{8}$ " Round x $\frac{3}{4}$ "	14"	JTR1	2.69 lbs.
Blank $\frac{7}{8}$ " Round x $\frac{3}{4}$ "	18"	JTR5	1.87 lbs.

$\frac{7}{8}$ " Round x $\frac{3}{4}$ " Shank only Pad only 6"	13"	JTR6 PBA17-6	1.87 lbs. 5.06 lbs.
--	-----	-----------------	------------------------

$\frac{7}{8}$ " Round x $\frac{3}{4}$ "	23"	JTR7	7.18 lbs.
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$\frac{3}{8}$ " x $\frac{3}{4}$ "	12"	JAA13C12	3.5 lbs.
$\frac{3}{8}$ " x $\frac{3}{4}$ "	18"	JAA13C18	5.0 lbs.
$\frac{3}{8}$ " x $\frac{3}{4}$ "	24"	JAA13C24	6.5 lbs.

$\frac{7}{8}$ " Round x $\frac{3}{4}$ "	13"	$\frac{1}{16}$ JTR-2	1.87 lbs.
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$\frac{7}{8}$ " Round x $\frac{3}{4}$ "	13"	$\frac{3}{8}$ JTR3	1.75 lbs.
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Bit Size	Nom. Length	Symbol	Use with Adapter
$\frac{1}{4}$ "	3"	$\frac{1}{4}$ JTM1-3	794J10A
$\frac{5}{16}$ "	4"	$\frac{5}{16}$ JTM1-4	794J10A
$\frac{3}{8}$ "	4"	$\frac{3}{8}$ JTM1-4	794J10A
$\frac{7}{16}$ "	4"	$\frac{7}{16}$ JTM1-4	794J10A
$\frac{1}{2}$ "	9"	$\frac{1}{2}$ JTM1-9	794J10A
$\frac{1}{2}$ "	18"	$\frac{1}{2}$ JTM-18	794J10A
$\frac{5}{8}$ "	9"	$\frac{5}{8}$ JTM2-9	A794J10A
$\frac{3}{4}$ "	9"	$\frac{3}{4}$ JTM2-9	A794J10A
$\frac{7}{8}$ "	9"	$\frac{7}{8}$ JTM2-9	A794J10A
1"	9"	1 JTM2-9	A794J10A
$1\frac{1}{8}$ "	12"	$1\frac{1}{8}$ JTM2-12	A794J10A
$\frac{5}{8}$ "	18"	$\frac{5}{8}$ JTM2-18	A794J10A
$\frac{3}{4}$ "	18"	$\frac{3}{4}$ JTM2-18	A794J10A
$\frac{7}{8}$ "	18"	$\frac{7}{8}$ JTM2-18	A794J10A
1"	18"	1 JTM2-18	A794J10A
$1\frac{1}{8}$ "	24"	$1\frac{1}{8}$ JTM2-24	A794J10A
$\frac{3}{4}$ "	6"	$\frac{3}{4}$ JTM3-6	B794J10A
$\frac{3}{4}$ "	12"	$\frac{3}{4}$ JTM3-12	B794J10A
$\frac{3}{4}$ "	26"	$\frac{3}{4}$ JTM3-26	B794J10A
1"	12"	1 JTM3-12	B794J10A
1"	26"	1 JTM3-26	B794J10A

Shank Size Hex.	Opening Size	Symbol	For Use With
$\frac{7}{8}$ " x $\frac{3}{4}$ "	$\frac{3}{8}$ "	794J10A	Star Drills $\frac{1}{4}$ " to $\frac{1}{2}$ "
$\frac{7}{8}$ " x $\frac{3}{4}$ "	$\frac{1}{2}$ "	A794J10	$\frac{3}{8}$ " to $1\frac{1}{8}$ "
$\frac{7}{8}$ " x $\frac{3}{4}$ "	$1\frac{1}{8}$ "	B794J10	Carset Steels $\frac{3}{4}$ " and 1"

Gauge Size	Thread	Symbol	Weight
$1\frac{1}{4}$ "	Series 113	$1\frac{1}{4}$ 113X	6 $\frac{1}{2}$ oz.
$1\frac{3}{8}$ "	Series 113	$1\frac{3}{8}$ 113X	8 oz.
$1\frac{1}{2}$ "	Series 113	$1\frac{1}{2}$ 113X	10 oz.
$1\frac{5}{8}$ "	Series 113	$1\frac{5}{8}$ 113X	10 oz.

CHISEL BITS

$1\frac{3}{8}$ "	Series 113	113XS2	7 oz.
$1\frac{1}{2}$ "	Series 113	113XS2	9 oz.

Jackhamers

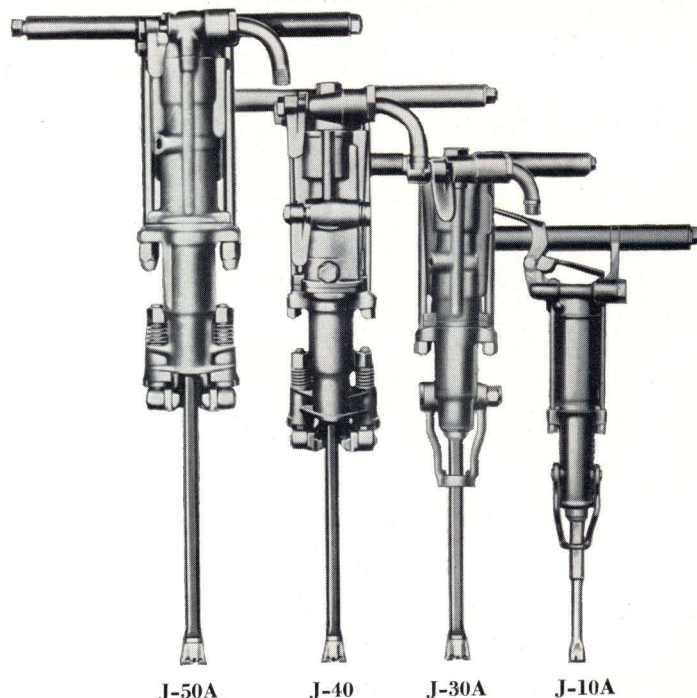
Sizes 30 Pound, 40 Pound, 55 Pound Class

Ingersoll-Rand
Rock Drilling Equipment

The relative light weight, fast drilling speed, stamina, and easy holding of I-R Jackhamers have made them the standards of comparison the world over. Ingersoll-Rand Jackhamers incorporate the best features of the earlier, history-making, I-R machines, plus the many subsequent developments which make them the outstanding drills of our time. There is a Jackhamer of the right weight and power for any kind of job, including the lightweight J-10A shown on Sheet 16L.

Table of "Jackhamer" Drills

Drill	Type	Wt. Lbs.	Length	Air Hose	Dia. Hex. Steel	Size Steel Shank
J-10A	Wet	21	19"	$\frac{3}{8}$ " or $\frac{1}{2}$ "	$\frac{7}{8}$ "	$\frac{7}{8}$ " x $3\frac{1}{4}$ "
	Dry	15	17 $\frac{1}{8}$ "	$\frac{3}{8}$ " or $\frac{1}{2}$ "	$\frac{7}{8}$ "	$\frac{7}{8}$ " x $3\frac{1}{4}$ "
J-30A	Dry	35	19 $\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	$\frac{7}{8}$ " x $3\frac{1}{4}$ "
	Wet	36	19 $\frac{3}{4}$ "			
	Blower	35	19 $\frac{3}{4}$ "			
J-40	Dry	53	22 $\frac{3}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	$\frac{7}{8}$ " x $3\frac{1}{4}$ "
	Wet	55	22 $\frac{3}{8}$ "			
	Blower	53	22 $\frac{3}{8}$ "			
J-50A	Dry	59	23 $\frac{1}{16}$ "	$\frac{3}{4}$ "	1"	1" x $4\frac{1}{4}$ "
	Wet	64	23 $\frac{1}{16}$ "			
	Blower	60	23 $\frac{1}{16}$ "			



WORK RECOMMENDED FOR

Type	Recommended For
J-10A	General utility and industrial drilling.
J-30A	Hole drilling in coal mines. General industrial use.
J-40	General utility and blockholing.
J-50A	Drilling holes up to 20 ft. depths in all rock types, mines, excavation, shaft sinking, road building, quarrying, blockholing.



J-30A Jackhamer drilling foundation bolt holes for a machine tool.



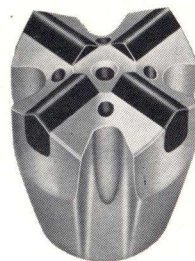
Heavy-Duty Jackhamers used in sewer excavation.



JACKBITS AND DRILL RODS

Steel Jackbits are a distinctive form of detachable rock drill bits. They are secured to the end of the drill rod by means of threads making them easy to detach. Every Jackbit is made of steel best suited for that particular size and type of bit. The correct degree of hardness is imparted to it by modern heat-treating methods and equipment.

Carset bits (bits with inserts of tungsten carbide) have revolutionized the art of Rock Drilling. The cutting edges of tungsten carbide give these bits phenomenal life. In most cases, they outlast a steel bit usage by 100 to 1 and in many cases, by as much as 400 to 1. Because Carset bits stay sharp longer and drill faster, they result in improved drilling cycles, greater production, lower bit cost per foot of hole, less work in the reconditioning shops, and lower costs generally.



CARSET BIT



STEEL JACKBIT

TABLE OF CARSET BITS FOR "JACKHAMERS"

Threads	Carset Bit Sizes	Steel Jackbit Sizes	Popular Rod Selection	Recommend Jackhammer
Type 0 Series 113	1 1/4", 1 3/8", 1 1/2", 1 5/8"	1 3/8" to 2" 1 1/4" to 1 3/4"	7/8" Hex. & Q.O.	J-10A J-30A J-40 J-50A
Type 1 Series 115	1 5/8", 1 3/4", 1 1/2", 1 5/8", 1 3/4", 1 7/8", 2"	1 1/2" to 2 5/8" 1 3/4" to 2 5/8"	1" Hex. & Q.O.	J-50A

Note: Adapters are available for use with larger Diameter bits for Special applications.

TABLE OF JACKRODS
Carbon Steel

Steel Section	Shank	Threads	Symbol	Drilling Lengths
7/8" Hex.	7/8x3 1/4	0	JAA0C18	1 1/2' to 10'
7/8" Hex.	7/8x3 1/4	1	JAA1C12	1' to 12'
7/8" Hex.	7/8x3 1/4	113	JAA13C12	1' to 10'
7/8" Hex.	7/8x3 1/4	115	JAA15C24	2' to 10'
1" Hex.	1x4 1/4	1	JCC1C12	1' to 20'
1" Hex.	1x4 1/4	115	JCC15C24	2' to 18'

Alloy Steel

7/8" Hex.	7/8x4 1/4	113	JAB13A18	1 1/2' to 15'
1" Hex.	1x4 1/4	115	JCD15A24	2' to 24'



JACKROD



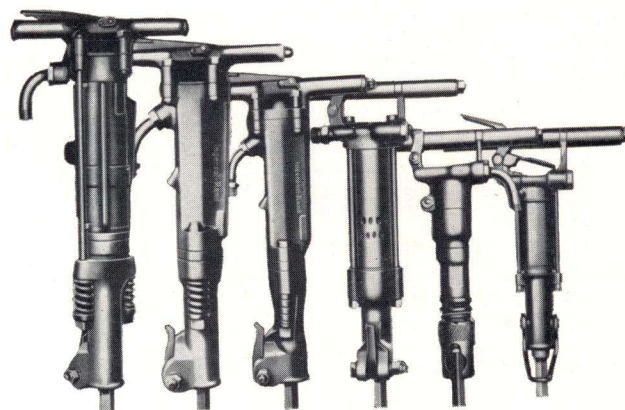
Paving Breakers

Ingersoll-Rand
Rock Drilling Equipment

Ingersoll-Rand Paving Breakers are hard-hitting, non-rotating hand-held machines. They are built particularly for breaking up concrete, brick and macadam, and with proper accessories, for spike driving, digging and backfill tamping.

Ingersoll-Rand Paving Breakers have their weight distributed for easy handling and balance. There is no useless, excess metal for men to lift and push around. At the same time they are extra strong where strength is needed. Stronger joints make them better prying tools.

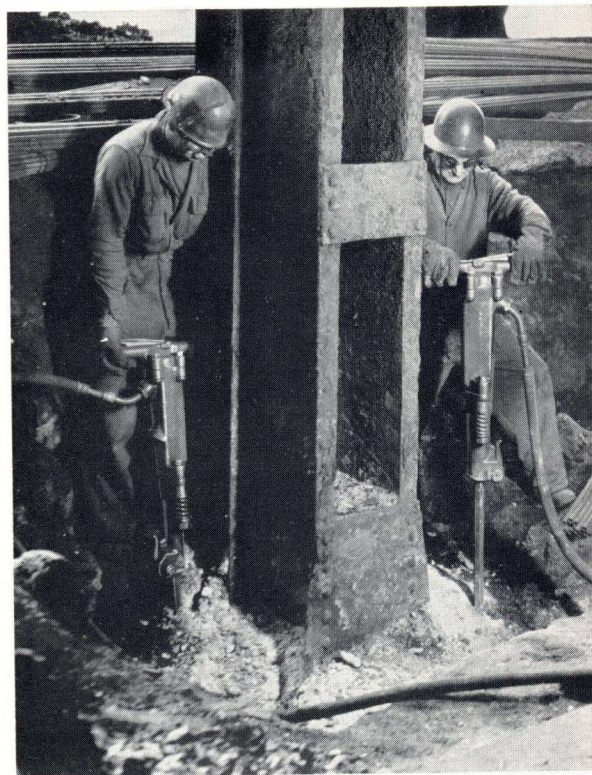
Each size of breaker has the right weight and power for the job it was designed for. There are five sizes to choose from. The J-10A Jackhammer is also listed because it serves very well for occasional demolition jobs when used with round-shanked accessories. Consult the table of specifications and descriptions on back of this sheet. See sheet 167 for special tool types.



R-30 PB-8A PB-6 PB-59 L-29 J-10A



PB-8A tearing up concrete foundation of old power-house.



Heavy-Duty PB-8A Paving Breakers working on a tough demolition job.



Type	Weight	Length	Standard Chuck Shank Size	Recommended For
J-10A Pistol Grip Standard	14½ lbs.	17½"	⅞" hex x ¾"	General utility demolition work on brick, stone or rock. Available in either the pistol grip type handle or "T" type handle and center grip handle, used with round shanked accessories.
J-10A "T" Handle Optional	21 lbs.	19"	⅞" hex x ¾"	
L-29 Pistol Grip Standard	20 lbs.	19½"	⅞" hex x 2¾"	Light duty demolition and digging jobs in brick, stone, rock, clay, hardpan or shale.
L-29 "T" Handle Optional	24 lbs.	20¼"	⅞" hex x 2¾"	
PB-59 "T" Handle Standard	41 lbs.	23½"	1" hex x 4¼"	Unexcelled efficiency in general demolition work on streets, in quarries, or industrial plants. Also available as a Form Pin Driver to concrete form pins for sidewalk or roadway concrete forms.
PB-59 Grip Handle Optional	41 lbs.	23½"		
PB-59 Ext. Handle Optional	45 lbs.	28"		
PB-6	58 lbs.	26"	1⅞" hex x 6"	Medium to heavy duty demolition of all types where efficiency, weight and air consumption are foremost. Also available as a spike driver.
PB-8A Standard	82 lbs.	26½"	1¼" hex x 6"	All heavy duty concrete breaking jobs, or as a spike driver, also available as a sheathing or pile driver with special fronthead.
PB-8A Safety Handle	84½ lbs.	26½"		
R-30	113 lbs.	32"	1¼" hex x 6"	Extra heavy demolition work, pile driving, sheathing driving & slag breaking. Also available for Crust Breaking application with special backhead and fronthead for 2½" dia. steel.



I-R Paving Breaker breaking up concrete for resurfacing the floor. 3R36 SPOTAIR Compressor furnishes necessary air.



Size J10A with moil point chisel cutting out concrete block.

SPECIAL DRIVING AND DEMOLITION TOOLS

Ingersoll-Rand Rock Drilling Equipment



Form Pin Driver
Fronthead
Symbol No.
887PB59



PB-59 Form Pin Driver

This tool is the PB59 Paving Breaker equipped with special fronthead and parts to adapt it for driving concrete highway or sidewalk form pins.

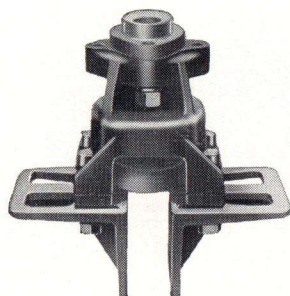
This tool is the PB-6 Paving Breaker fitted with Spike Driver Fronthead parts. It is an excellent medium weight tool for this service on all main line, spur or plant service railroads. Special Spike Driving Attachment also available for use with the heavier PB-8A Paving Breaker.



PB6 or PB8A
Spike Driver
Fronthead
Symbol No.
887PB6 or 887PB8



PB-6 Spike Driver



Sheathing or Pile
Driver Fronthead
Symbol No.
A573PB8



PB-8A Sheathing Driver

The PB-8A Sheathing Driver equipped with a special fronthead and parts driving sheathing from 2" to 3" in thickness.

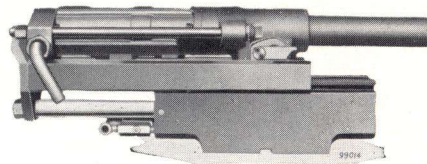


PB-8A Spike Driver



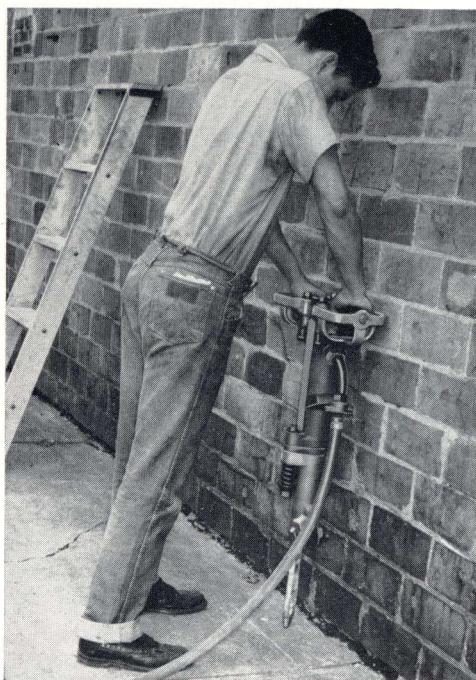
The PB-8A Spike Driver is a heavier duty edition of the PB-6 Spike Driver.

R-30 Crust Breaker



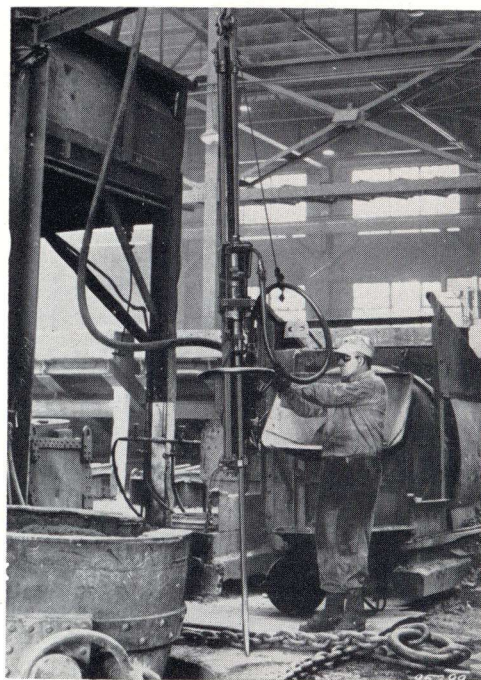
The R-30 Crust Breaker was developed for use in aluminum reduction plants to break the crust that forms over the alumina mixture in the shells of the electrolytic cells ("pots"). A special customer fabricated mounting is usually employed, this is special for each particular plant application.

PB-8A with Safety Handle



This tool equipped with strong protective aluminum safety handle for industrial application where injury to operators' hands is frequent. Handle adds only $2\frac{1}{2}$ pounds to weight of tool.

R-30 Slag Breaker



The R-30 Slag Breaker is recommended for rope sling or chain mounting or for slabback mounting on a JHM or FM-4 Wagondrill tower. For all heavy duty slag pot cleaning in steel, alloy or aluminum plants.

PAVING BREAKER ACCESSORIES

Ingersoll-Rand Rock Drilling Equipment

A complete line of Paving Breaker Accessories in all practical lengths and shank sizes is manufactured by the Ingersoll-Rand Company. Included in this line are forged, spark-resistant Beryllium-Copper Alloy safety accessories for use in areas where explosions or fires exist as occupational hazards.

The most modern production methods and con-

trols are used in heat treating and inspection to insure a proper combination of hardness and toughness to the finished tools. All accessories are tempered and ready to use and every chisel and bladed steel is magnafluxed to insure a quality tool, free of forging and heating cracks. The quality of Ingersoll-Rand Accessories is reflected in many reports from our customers which show that I-R Accessories cut replacement costs in half.



A table showing the complete range of shank sizes and lengths of available Paving Breaker Accessories can be found on the reverse side of the page.

1. **Moil Points**—Used for heavy-duty breaking of concrete or slag, splitting of boulders or on any job where a rugged steel is needed.
2. **"Super" Moil Points**—Made of extra heavy round stock for maximum life.
3. **Moil Point or Chisel Blanks**—Available for forging by user to any desired shape.
4. **Wedge Points**—Used on concrete and hard materials where increased production is possible due to wedge shape.
5. **2" x 12" Wedge**—This tool's special shape and design make it ideal for breaking concrete, frozen earth, slag, etc.
6. **Concrete Wedge**—This "self-sharpening" tool, combining the desirable features of a moil point and wedge point is used in all types of concrete.
7. **Narrow Chisel Bits**—Four widths are used for a wide variety of cutting and breaking jobs where penetration is needed.
8. **"Super" Narrow Chisel Bits**—Made of extra heavy round stock for maximum life.
9. **1 3/4-Inch Chisel Bits**—This popular width chisel is used for concrete demolition and various cutting jobs.
10. **3-Inch Chisel Bits**—Designed for line cutting and to speed up digging in substances too soft for efficient moil point or narrow chisel work.
11. **3" x 12" Digging Chisels**—Its long blade makes this steel ideal for deep digging and cutting of asphalt, shales, hard pan, etc.
12. **5-Inch Asphalt Cutters**—Designed to speed up line cutting of asphalt and similar substances.
13. **3" and 5" Flat Picks**—Used for picking, digging and slabbing in materials too hard for efficient operation of a clay scoop.
14. **5 1/2-Inch Clay Spades**—Special curved shape gives maximum efficiency in digging or loosening clay, earth and similar materials.
15. **Broaching Steels**—Used for removing blocks of stone or concrete by broaching out the material between holes drilled on closely spaced centers.
16. **Boulder Breakers**—Used in boulder or block concrete breaking by impacting tool in a drilled hole. Generally used where explosives are prohibited.
17. **Curved Chisel Bits**—Used in coal mining, picking and special masonry demolition.
18. **3-Inch Toothed Chisel**—Used in roughening concrete prior to resurfacing or in general digging.
19. **Collarless Moil Points, Narrow**
22. **Chisel Bits, 3-Inch Chisel Bits and 5-Inch Asphalt Cutters**—Available for use with demolition tools with chain type retainers.
23. **Sheathing Drivers with Detachable Shanks**—for 2" and 3" sheathing in 1" 1 1/8" and 1 1/4" hex. shank sizes.
24. **Round and Square Tamping Pads with Detachable Shanks**—Available in 7/8", 1", 1 1/8" and 1 1/4" hex. shank sizes and 3", 6", 7" and 8" pad sizes.



TABLE OF PAVING BREAKER ACCESSORIES

Accessories	Shank Size Hex.-Ins.	Nominal Length Under Collar, Inches																			
		10	11	12	13	14	15½	16	17	18	19	20	24	30	36	48	60	72	96	120	144
Moil Points	1¼x6 1½x6 1x4¼ ¾x3¼ ¾x2¾			x		x				x†			x	x	x	x	x	x	x	x	x
“Super” Moil Points	1¼x6 1½x6					x				x											
Moil Point or Chisel Blanks	1¼x6 1½x6 1x4¼ ¾x3¼ ¾x2¾			x		x				x			x		x	x	x	x			
Wedge Points	1¼x6 1½x6							x													
2” x 12” Wedges	1¼x6 1½x6 1x4¼					x															
Concrete Wedges	1¼x6 1½x6					x				x											
1” Narrow Chisel Bits	¾x3¼ ¾x2¾					x				x			x		x						
1½” Narrow Chisel Bits	1x4¼					x				x†			x		x	x	x	x	x	x	
1¼” Narrow Chisel Bits	1½x6					x				x†			x	x	x	x	x	x	x	x	
1¾” Narrow Chisel Bits	1¼x6					x				x†			x	x	x	x	x	x	x	x	
“Super” Narrow Chisel Bits	1¼x6 1½x6					x				x											
1¾” Chisel Bits	1¼x6 1½x6					x				x			x								
3” Chisel Bits	1¼x6 1½x6 1x4¼ ¾x3¼ ¾x2¾					x			x	x††			x	x	x	x	x	x	x	x	
3”x12” Digging Chisels	1¼x6 1½x6 1x4¼						x		x†	x†											
5” Asphalt Cutters	1¼x6 1½x6 1x4¼	x†	x†																		
3” Flat Picks	1x4¼ ¾x3¼ ¾x2¾								x	x		x									
5” Flat Picks	1x4¼ ¾x3¼ ¾x2¾								x	x		x									
5½” Clay Spades	1¼x6 1½x6 1x4¼ ¾x3¼ ¾x2¾								x	x											
Broaching Steels	1¼x6 1½x6					x							x		x						
Boulder Breakers	1¼x6 1½x6 1x4¼				x																
Curved Chisel Bits	¾x3¼ ¾x2¾									x			x		x						
3” Toothed Chisels	1¼x6 1½x6 1x4¼					x				x											
Collarless Moil Points*	1½											x	x†	x							
1¼” Collarless Narrow Chisel Bits*	1½												x†								
Collarless 3” Chisel Bits*	1½												x								
Collarless 5” Asphalt Cutters*	1½								x												

*Lengths for collarless tools are overall lengths.

†Accessories also available in spark-resistant Beryllium-Copper Alloy.

††Accessories available only in spark-resistant Beryllium-Copper Alloy

Model GR-85**Gasoline-Engine-Driven**
Ingersoll-Rand
Portable Compressors

The Gyro-Flo compressor shown on this page is the only portable, of rotary design, with 85-cfm capacity available today. It is an oil-cooled, single-stage, rotary sliding vane compressor without valves, pistons, rings, rods, clutch or intercooler. It is driven by the Continental Motors F-140 Gasoline Engine—a rugged 4-cylinder, 4-cycle engine with "L" head design.

The Gyro-Flo 85 is backed by years of development and engineering skill in the manufacturing of portable rotary compressors. On the job reports have tabbed it as the greatest little compressor ever developed.

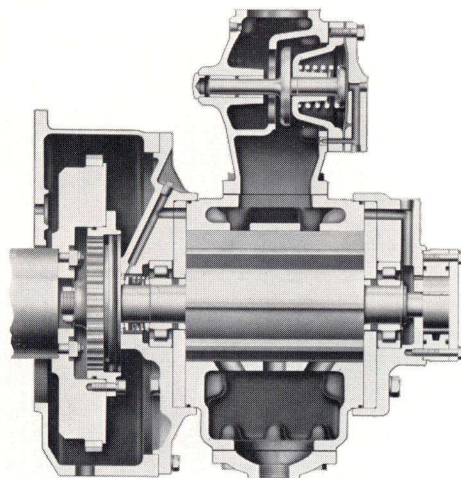
Weights only 1835 pounds ready-to-go—and fully equipped with tool boxes, fenders and two-wheel spring mounted running gear. As a truck mounted unit, the Gyro-Flo 85 weighs only 1550 pounds. Even with this amazing lightweight, this compressor offers the same trouble-free performance as the five larger sizes, which have set the new standard for portable air power.

Lighter in Weight than reciprocating portables of the same capacity range.

Compact . . . weighs only 1835 pounds ready-to-go—9'-9½" long—5'-2" wide and 4'-9½" high.

No Valves to Leak . . . and no pistons, rings, rods or clutch.
No High Temperatures . . . as a result of oil-injection cooling, air temperatures stay low.

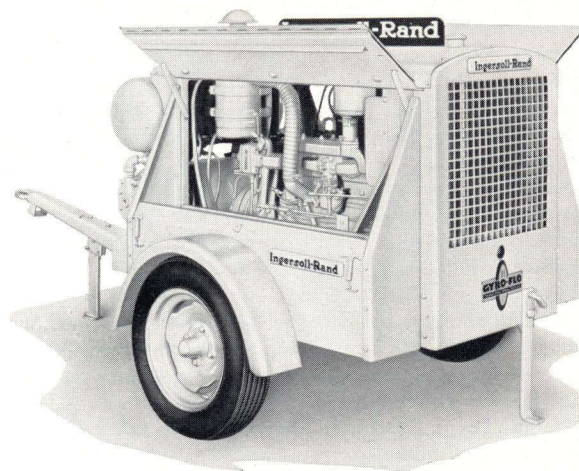
Low Oil Consumption . . . maintained throughout the life of the compressor.



The Gyro-Flo 85 is an oil-cooled, single-stage, rotary sliding vane compressor.

85 cfm size (other portables to 900 cfm)

Normal Operating Pressures: 85 to 115 psi



The Gyro-Flo 85 is driven by the Continental F-140 Gasoline Engine.

APPLICATION: Air

Building Contractors find many uses for the Gyro-Flo 85 in construction, demolition, maintenance and repair work. Its compactness and lightweight allow it to be towed by even the smallest truck. On the smaller jobs it eliminates the transportation and tie-up of larger compressors needed to handle the big jobs.

Plumbing and Electrical Contractors can use the Gyro-Flo 85 to great advantage on jobs requiring digging or drilling for pipelines, conduits, wiring and fixtures.

GENERAL CONSTRUCTION

Rotary Compressor . . . Essentially, the Gyro-Flo consists of a cylindrical rotor with a number of radial slots fitted with non-metallic sliding vanes. These vanes are held against the cylinder walls by centrifugal force when the compressor is operating. The cylinder is considerably larger than the rotor and is placed off-center . . . so that the air pockets formed by the vanes between the cylinder and the rotor gradually increase and decrease in size during each revolution. The air flows through the intake ports and is trapped in a pocket . . . then as the pocket decreases in size during rotation, the air is gradually compressed until it reaches the discharge ports.

The Gyro-Flo 85 is a single-stage, oil-cooled, rotary sliding vane compressor.

Oil-Injection Cooling . . . Cooled oil, from the main oil pump in rear of the compressor, is injected directly into the air during compression. This atomized oil mixes with the air and absorbs much of the heat of compression. At no point under normal operating conditions does the air temperature exceed 200°F. There is never any carbonization or breakdown of oil. No intercooler is necessary.



The oil performs three functions: It cools the air . . . it oil-seals the blades against air slippage . . . and copiously lubricates the sliding blades. In addition, oil feed lines also lubricate the four anti-friction roller bearings. Drilled internal oil passages eliminate the danger of leaky or ruptured oil lines. The oil is cooled by a large radiator-type oil cooler located in front of the engine radiator.

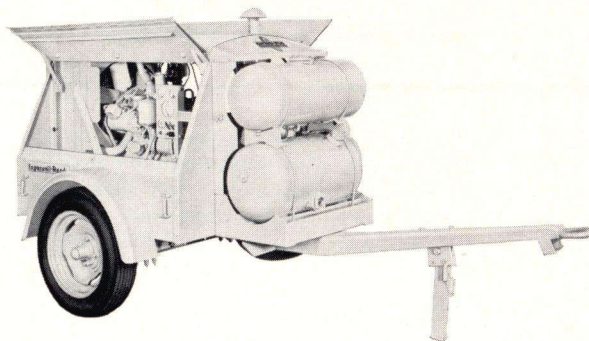
Oil Separator . . . The oil, which mixes with the air during compression, passes out through the discharge into a combination receiver and oil separator. Here, by means of baffles and a filter, the oil is removed from the air before it goes into the air lines. Of the oil circulated, 99.999% is recovered from the air by the separator. Oil consumption is low and stays low.

Air-Glide Capacity Control is the first portable compressor regulation system that controls compressor capacity smoothly and gradually all the way from 0 to 100% output. Floating-Speed engine control is combined with variable intake unloading of the compressor to entirely eliminate "all-on all-off" regulation. The compressor runs only fast enough to meet the demand for air, thereby assuring top fuel economy and a minimum of wear and tear on both engine and compressor.

Unified Power Plant . . . The compressor and engine are combined into the well-known "unified power plant," being joined by a sturdy casting with counter-bored fits. The compressor is driven through an internal-external gear type coupling in which both gears have the same pitch diameter, making the coupling self-aligning and self-compensating for longitudinal expansion. The complete coupling assembly is sealed to prevent the entrance of dirt and retain permanent lubrication.

THE IDEAL COMPRESSOR TRUCK MOUNTING

Lightest Portable Rotary Ever Developed . . . The Gyro-Flo 85 is the lightest weight 85 cfm portable available. Less running gear, fenders and tool boxes, it makes an ideal compressor for truck mounting. The Gyro-Flo 85, as a truck mounted unit, weighs only 1550 pounds and stands only 42 inches high. This amazing light-weight and compactness allows it to be mounted in or on even the smallest

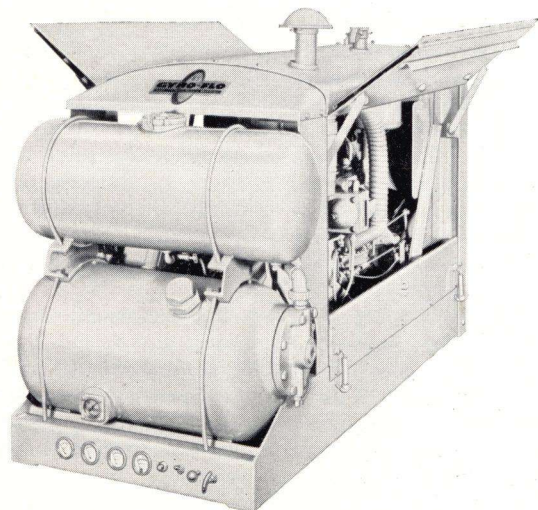


Extreme light-weight and compactness allows the "85" to be towed by the smallest of trucks.

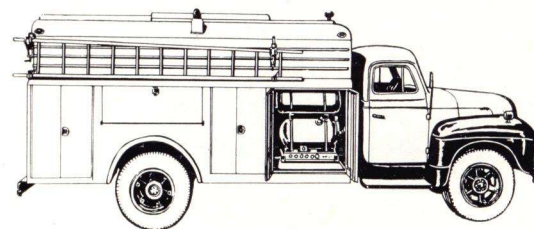
SPECIFICATIONS

Model of GYRO-FLO	GR-85 with Gasoline Engine
Act. free air del. at sea level 100 psi. disch.	85 CFM
2 WHEEL SPRING MOUNTED DELUXE MODEL WITH FENDERS AND TOOL BOXES	
Net weight dry	1678
Net weight wet	1835
Length	9'-9 3/16"
Width	5'-2 1/8"
Height	4'-9 1/16"
Pneu. Tires—4-ply	6.40" x 15"
Track Width	54"
LESS RUNNING GEAR, TOOL BOXES AND FENDERS	
Net weight dry	1391
Net weight wet	1550
Length	5'-7 3/8"
Width	2'-6 3/8"
Height, includes shipping skid	3'-10"

EXPORT:—Add 38% to weights for export packing. Cubic contents approximately 172 for wheel mounted, 100 for less running gear.

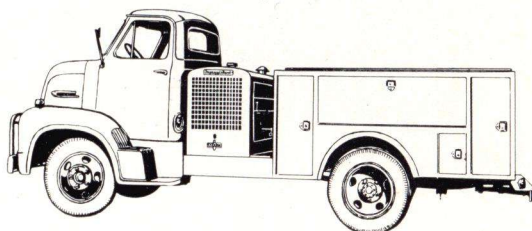


For mounting in enclosed trucks, controls can be conveniently grouped together under the receiver for ease of operation.



A-2126

Easily mounted in enclosed trucks, or on an open truck.



A-4747

Model GRA-125 gasoline-engine driven and Model DRA-125 diesel-engine driven

Ingersoll-Rand Portable Compressors

The new Gyro-Flo 125 shown on this page is a two-stage, oil-cooled, rotary sliding-vane compressor. Smaller and more compact than the original Gyro-Flo 125, it is backed by ten years of rotary field experience, and is the result of extensive research, performance evaluation and customer suggestions. It incorporates proven Gyro-Flo design features with many new ones to make it the best 125-cfm portable compressor available.

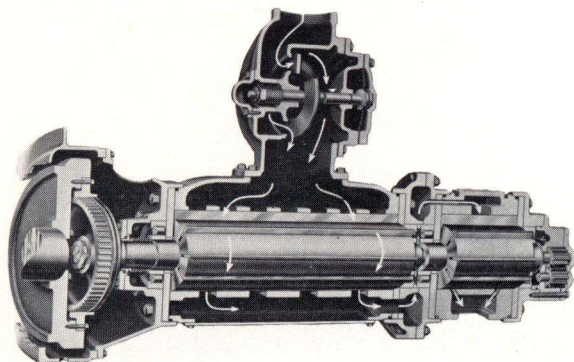
FEATURES

- Simplified, more efficient compressor system**
- Thermo By-Pass Control**
- Air-Glide Capacity Control**
- Automatic oil drainage from cylinders when unit is shut down**
- Safety shut-down of compressor**
- Provision for inspection of all rotor vanes**
- Slower speed (1800 rpm)**
- Fuel and air tanks under lockable housing**
- Full-length tool boxes**
- Automatic Blow Down Valve**
- Third wheel**
- Electric engine hour meter**

APPLICATION: Air

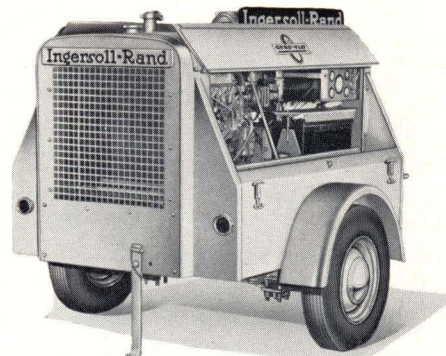
The new Gyro-Flo 125 will operate four utility Jackhammers, or two light Jackhammers, or one heavy Jackhammer, or three light paving breakers, or two heavy paving breakers, or three saws, or one hoist.

On a lighter load of air tools, the Gyro-Flo 125 with Air-Glide Capacity Control is just as efficient as a fully loaded, smaller-capacity compressor.



The Gyro-Flo 125 is an oil-cooled, two-stage, rotary sliding vane compressor.

125 cfm size (other Portables from 36 to 1200 cfm)



The Gyro-Flo GRA-125 driven by a Continental G-193 gasoline engine.

GENERAL CONSTRUCTION

Rotary Compressor . . . Essentially, the Gyro-Flo consists of a cylindrical rotor with a number of radial slots fitted with non-metallic sliding vanes. These vanes are held against the cylinder walls by centrifugal force when the compressor is operating. The cylinder is of considerably larger diameter than the rotor and is placed off-center . . . so that the air pockets formed by the vanes between the cylinder and the rotor gradually increase and decrease in size during each revolution. The air flows through the intake ports and is trapped in a pocket . . . then as the pocket decreases in size during rotation, the air is gradually compressed until it reaches the discharge ports.

Oil Injection Cooling . . . Cooled oil, from the main oil pump in the rear of the compressor, is injected directly into the air during compression. At no point under normal operating conditions does the air temperature exceed 200°F. There is never any carbonization or breakdown of oil. No inter-cooler is necessary.

The oil performs three functions: It cools the air . . . it oil-seals the blades against air slippage and copiously lubricates the sliding blades. In addition, oil feed lines also lubricate the four anti-friction roller bearings. Drilled internal oil passages eliminate the danger of leaky or ruptured oil lines. The oil is cooled by a large radiator-type oil cooler located in front of the engine radiator.



Oil Separator . . . The oil, which mixes with the air during compression, passes out through the discharge into a combination receiver and oil separator. Here, by means of baffles and a filter, the oil is removed from the air before it goes into the air hose. Of the oil circulated, 99.999% is recovered from the air by the separator. Oil consumption is low and stays low.

Air-Glide Capacity Control is the first portable compressor regulation system that controls compressor capacity smoothly and gradually all the way from 0 to 100% capacity. Just enough air is compressed to meet the demand at all times, thereby assuring top fuel economy and a minimum of wear and tear on both engine and compressor.

From full rated capacity down to 60% capacity the Air-Glide Regulator controls the output solely by varying the compressor speed through the engine governor. Below 60% capacity, the output is controlled by both speed variation and the Volumetric Regulator, a large valve which throttles the air intake to the compressor. Throughout the entire capacity range, the air pressure never goes below 100 psi nor above 110 psi, thereby assuring uniform work and more work done by drills and other air tools.

Thermo By-Pass Control . . . Located in the oil piping, it by-passes varying amounts of oil, depending on the temperature, around the cooler until the circulated oil reaches a temperature of 185°F. The control then closes the by-pass completely and all the oil is circulated through the cooler. The most efficient compressor operating temperature is automatically maintained, and the possibility of water vapor condensing in the oil system is greatly reduced.

SPECIFICATIONS

Model of Gyro-Flo	GRA-125 with Gasoline Engine	DRA-125 with Diesel Engine
Act. free air del. at sea level 100 psi discharge.....	125 cfm	125 cfm
Speed.....	1800 rpm	1800 rpm
2-Wheel Spring-Mounted De-Luxe		
Net weight dry.....	2442	2503
Gross weight.....	2647	2738
Length.....	10'11 ¹ / ₁₆ "	10'11 ¹ / ₁₆ "
Width.....	5'8 ³ / ₄ "	5'8 ³ / ₄ "
Height (Pneu. Tires).....	5'2 ¹ / ₄ "	5'2 ¹ / ₄ "
Pneumatic Tires, automotive.....	6 ply 6.70"x15"	6 ply 6.70"x15"
Track width.....	60"	60"
Less Running Gear		
Net weight dry.....	1965	2026
Gross weight.....	2170	2260
Length.....	5'10 ¹ / ₁₆ "	5'10 ¹ / ₁₆ "
Width.....	2'8 ³ / ₄ "	2'8 ³ / ₄ "
Height.....	3'9 ¹ / ₂ "	3'9 ¹ / ₂ "

EXPORT:—Add 34% to weights for export packing. Cubic contents approximately 147 for wheel mounted, 98 for less running gear.

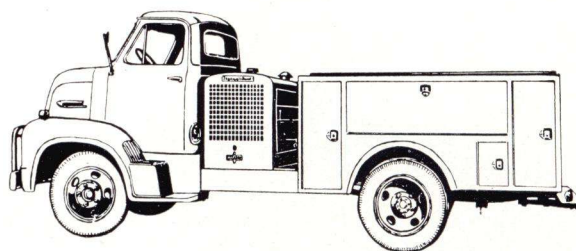
Housing and Running Gear . . . The spring-mounted, pneumatic-tired running gear has a new 60" track for steady, dependable towing over the roughest terrain. And all controls and servicing points, including the primary and secondary separators, fuel tank and full-length tool boxes are under lockable housing for added security.

Unified Power Plant . . . The compressor and engine are combined into the well-known "unified power plant," being joined by a sturdy casting with counter-bored fits. The compressor is driven through an internal-external gear type coupling in which the gears have the same pitch diameter making the coupling self-aligning longitudinally. The complete coupling assembly is sealed to prevent the entrance of dirt and to retain permanent lubrication.

Engines . . . Both the GRA-125 and DRA-125 are powered by the new Continental Series 193 Engines. These modern, overhead valve engines feature full-pressure lubrication, controlled temperature cooling system, anodized aluminum alloy pistons, chrome top rings, new alloy steel valves and inserts, and positive rotating exhaust valves for a long life of low-cost, efficient operation.

TRUCK MOUNTING

Less running gear, fenders and tool boxes, the new Gyro-Flo 125 makes an ideal self-contained air power plant for truck mounting. Since there are no gears, clutches or belts, the unified engine-compressor plant can be operated independently, saving wear and tear on the truck engine. The complete unit stands 45¹/₂" high, 32³/₈" wide and weighs only 1965 lb.



New Gyro-Flo GRAU-125, utility unit mounted crosswise on a truck.

Model GR-250 gasoline-engine driven and Model DR-250 diesel-engine driven

Ingersoll-Rand Portable Compressors

The new Gyro-Flo-250 two-stage, oil-cooled, rotary sliding vane compressor is backed by ten years of rotary field experience, and is the result of extensive research, performance evaluation and customer suggestions. Although it is smaller and more compact than its famous predecessor, the Gyro-Flo 210, it delivers nearly 20% more capacity - yet retains the same engine speeds. The Gyro-Flo 250 incorporates proven Gyro-Flo design features with many new ones to make it the best 250-cfm portable compressor available.

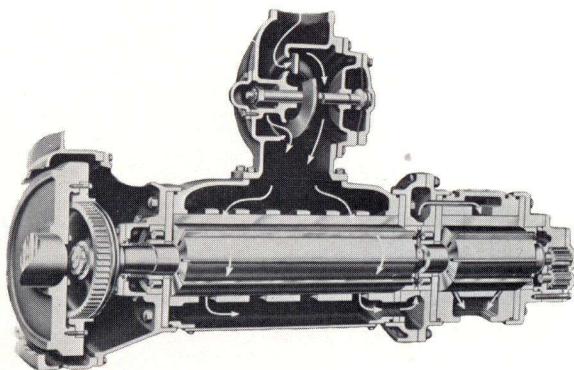
FEATURES

- Simplified, more efficient compressor system**
- Thermo By-Pass Control**
- Air-Glide Capacity Control**
- Automatic oil drainage from cylinders when unit is shut down**
- Safety shut-down of compressor**
- Provision for inspection of all rotor vanes**
- Fuel and air tanks under lockable housing**
- Full-length tool boxes**

APPLICATION: Air

The new Gyro-Flo 250 will operate one Ingersoll-Rand Wagonjack with light drifter, or two Wagonjacks with Jackhamers, or three medium Jackhamers, or four lighter Jackhamers, or five medium paving breakers or nine diggers.

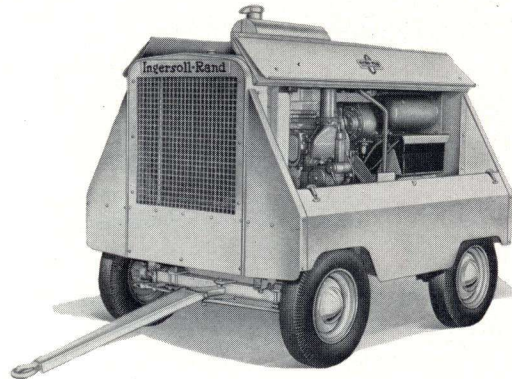
On a lighter load of air tools, the Gyro-Flo 250 with Air-Glide Capacity Control is just as efficient as a fully loaded, smaller-capacity compressor.



The Gyro-Flo is an oil-cooled, two-stage, rotary sliding vane compressor.

250 cfm size (other Portables from 36 to 900 cfm)

Pressures: 85 to 115 psi Two-Stage Oil-Cooled



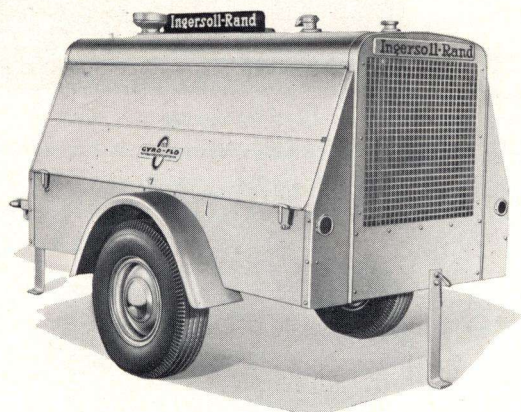
The Gyro-Flo DR-250 driven by the GM 4-53 Diesel Engine.

GENERAL CONSTRUCTION

Rotary Compressor . . . Essentially, the Gyro-Flo consists of a cylindrical rotor with a number of radial slots fitted with non-metallic sliding vanes. These vanes are held against the cylinder walls by centrifugal force when the compressor is operating. The cylinder is of considerably larger diameter than the rotor and is placed off-center . . . so that the air pockets formed by the vanes between the cylinder and the rotor gradually increase and decrease in size during each revolution. The air flows through the intake ports and is trapped in a pocket . . . then as the pocket decreases in size during rotation, the air is gradually compressed until it reaches the discharge ports.

Oil Injection Cooling . . . Cooled oil, from the main oil pump in the rear of the compressor, is injected directly into the air during compression. At no point under normal operating conditions does the air temperature exceed 200°F. There is never any carbonization or breakdown of oil. No inter-cooler is necessary.

The oil performs three functions: It cools the air . . . it oil-seals the blades against air slippage and copiously lubricates the sliding blades. In addition, oil feed lines also lubricate the four anti-friction roller bearings. Drilled internal oil passages eliminate the danger of leaky or ruptured oil lines. The oil is cooled by a large radiator-type oil cooler located in front of the engine radiator.



The Gyro-Flo 250 has a 60" track for steady, dependable towing.

Oil Separator . . . The oil, which mixes with the air during compression, passes out through the discharge into a combination receiver and oil separator. Here, by means of baffles and a filter, the oil is removed from the air before it goes into the air hose. Of the oil circulated, 99.999% is recovered from the air by the separator. Oil consumption is low and stays low.

Air-Glide Capacity Control is the first portable compressor regulation system that controls compressor capacity smoothly and gradually all the way from 0 to 100% capacity. Just enough air is compressed to meet the demand at all times, thereby assuring top fuel economy and a minimum of wear and tear on both engine and compressor.

From full rated capacity down to 60% capacity, the Air-Glide Regulator controls the output solely by varying the compressor speed through the engine governor. Below 60% capacity, the output is controlled by both speed variation and the Volumetric Regulator, a large valve which throttles the air intake to the compressor. Throughout the entire capacity range, the air pressure never goes below 100 psi nor above 110 psi, thereby assuring uniform work and more work done by drills and other air tools.

Thermo By-Pass Control . . . Located in the oil piping, it by-passes varying amounts of oil, depending on the temperature, around the cooler until the circulated oil reaches a temperature of 185°. The control then closes the by-pass completely and all the oil is circulated through the cooler. The most efficient compressor operating temperature is automatically maintained, and the possibility of water vapor condensing in the oil system is greatly reduced.

Housing and Running Gear . . . The spring-mounted, pneumatic-tired running gear has a new 60" track for steady, dependable towing over the roughest terrain. And all controls and servicing points, including the primary and secondary separators, fuel tank and full-length tool boxes are under lockable housing for added security.

Unified Power Plant . . . The compressor and engine are combined into the well-known "unified power plant," being joined by a sturdy casting with counter-bored fits. The compressor is driven through an internal-external gear type coupling in which the gears have the same pitch diameter, making the coupling self-aligning longitudinally. The complete coupling assembly is sealed to prevent the entrance of dirt and to retain permanent lubrication.

Engines . . . The DR-250 is driven by a rugged General Motors 4-53 diesel engine. This 4-cylinder engine is a compact version of the highly successful 71 series engine, and includes such features as unit ejectors, uniflow scavenging, 2-cycle design and a low weight to horsepower ratio.

The Continental M-363 gasoline engine powers the GR-250. This 6-cylinder, 4-cycle engine features "L" head design and individual porting, and its clean design facilitates service and maintenance.

SPECIFICATIONS

Model of Gyro-Flo	DR-250 with Diesel Engine	GR-250 with Gasoline Engine
Actual free-air delivery at sea level 100 psi discharge.....	250 cfm	250 cfm
Speed.....	1800 rpm	1800 rpm
4 Pneumatic Tires		
Spring-Mounted & Automotive Steering		
Net weight dry.....	4193	4053
Net weight wet.....	4610	4425
Length—less drawbar.....	7'9 $\frac{3}{8}$ "	7'9 $\frac{3}{8}$ "
Width.....	5'9 $\frac{1}{2}$ "	5'9 $\frac{1}{2}$ "
Height.....	6'8 $\frac{3}{8}$ "	6'1"
Tires—6 ply heavy-duty.....	6.70"x15"	6.70"x15"
2 Pneumatic Tires		
Net weight dry.....	3923	3827
Net weight wet.....	4340	4200
Length—with drawbar.....	13'4 $\frac{1}{4}$ "	13'4 $\frac{1}{4}$ "
Width.....	5'11"	5'11"
Height.....	6'8 $\frac{1}{4}$ "	6'0 $\frac{3}{8}$ "
Tires—8 ply heavy-duty.....	7.50"x16"	7.50"x16"
Track width.....	60"	60"
Less Running Gear		
Net weight dry.....	3447	3307
Net weight wet.....	3864	3679
Length.....	7'9 $\frac{3}{8}$ "	7'9 $\frac{3}{8}$ "
Width.....	3'2 $\frac{1}{4}$ "	3'2 $\frac{1}{4}$ "
Height.....	5'0 $\frac{3}{8}$ "	4'5"

EXPORT:—Add approx. 35% to weights for export packing. Cubic contents approximately 275 for wheel mounted, 157 for unit less running gear.

Model DR-365 diesel-engine driven

Ingersoll-Rand Portable Compressors

The new Gyro-Flo-365 two-stage, oil-cooled, rotary sliding vane compressor is backed by ten years of rotary field experience, and is the result of extensive research, performance evaluation and customer suggestions. Although it is approximately the same size as its famous predecessor, the Gyro-Flo 315, it delivers nearly 16% more capacity-yet retains the same engine speeds. The Gyro-Flo 365 incorporates proven Gyro-Flo design features with many new ones to make it the best 365-cfm portable compressors available.

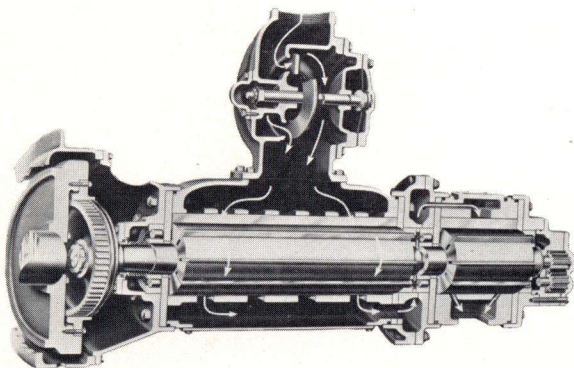
FEATURES

- Simplified, more efficient compressor system**
- Thermo By-Pass Control**
- Air-Glide Capacity Control**
- Automatic oil drainage from cylinders when unit is shut down**
- Safety shut-down of compressor**
- Provision for inspection of all rotor vanes**
- Full-length tool box**

APPLICATION: Air

The Gyro-Flo 365 will operate one of the powerful FM-4 Wagon Drills, or two of the Ingersoll-Rand Wagonjacks (lightweight wagon drills), or five Jackhammers, or six heavy paving breakers.

On a lighter load of air tools, the Gyro-Flo 365 with Air-Glide Capacity Control is just as efficient as a fully loaded, smaller-capacity compressor.



The Gyro-Flo 365 is an oil cooled, two-stage rotary sliding vane compressor.

365 cfm size (other Portables from 36 to 900 cfm)

Pressures: 85 to 115 psi Two-Stage Oil-Cooled



The Gyro-Flo—365 driven by the GM series 4-71 Diesel Engine.

GENERAL CONSTRUCTION

Rotary Compressor . . . Essentially, the Gyro-Flo consists of a cylindrical rotor with a number of radial slots fitted with non-metallic sliding vanes. These vanes are held against the cylinder walls by centrifugal force when the compressor is operating. The cylinder is of considerably larger diameter than the rotor and is placed off-center . . . so that the air pockets formed by the vanes between the cylinder and the rotor gradually increase and decrease in size during each revolution. The air flows through the intake ports and is trapped in a pocket . . . then as the pocket decreases in size during rotation, the air is gradually compressed until it reaches the discharge ports.

Oil Injection Cooling . . . Cooled oil, from the main oil pump in the rear of the compressor, is injected directly into the air during compression. At no point under normal operating conditions does the air temperature exceed 200°F. There is never any carbonization or breakdown of oil. No inter-cooler is necessary.

The oil performs three functions: It cools the air . . . it oil-seals the blades against air slippage and copiously lubricates the sliding blades. In addition, oil feed lines also lubricate the four anti-friction roller bearings. Drilled internal oil passages eliminate the danger of leaky or ruptured oil lines. The oil is cooled by a large radiator-type oil cooler located in front of the engine radiator.



A fast-starting ether system assures prompt starting of the Gyro-Flo—365 in cold weather.

Oil Separator . . . The oil, which mixes with the air during compression, passes out through the discharge into a combination receiver and oil separator. Here, by means of baffles and a filter, the oil is removed from the air before it goes into the air hose. Of the oil circulated, 99.999% is recovered from the air by the separator. Oil consumption is low and stays low.

Air-Glide Capacity Control is the first portable compressor regulation system that controls compressor capacity smoothly and gradually all the way from 0 to 100% capacity. Just enough air is compressed to meet the demand at all times, thereby assuring top fuel economy and a minimum of wear and tear on both engine and compressor.

From full rated capacity down to 60% capacity, the Air-Glide Regulator controls the output solely by varying the compressor speed through the engine governor. Below 60% capacity, the output is controlled by both speed variation and the Volumetric Regulator, a large valve which throttles the air intake to the compressor. Throughout the entire capacity range, the air pressure never goes below 100 psi nor above 110 psi, thereby assuring uniform work and more work done by drills and other air tools.

Thermo By-Pass Control . . . Located in the oil piping, it by-passes varying amounts of oil, depending on the temperature, around the cooler until the circulated oil reaches a temperature of 185°F. The control then closes the by-pass completely and all the oil is circulated through the cooler. The most efficient compressor operating temperature is automatically maintained, and the possibility of water vapor condensing in the oil system is greatly reduced.

Housing and Running Gear . . . The spring-mounted, pneumatic-tired running gear has a 56" track for steady, dependable towing over the roughest terrain. And all controls and servicing points, including fuel tank and full-length tool boxes are under lockable housing for added security.

Unified Power Plant . . . The compressor and engine are combined into the well-known "unified power plant," being joined by a sturdy casting with counter-bored fits. The compressor is driven through an internal-external gear type coupling in which the gears have the same pitch diameter, making the coupling self-aligning longitudinally. The complete coupling assembly is sealed to prevent the entrance of dirt and to retain permanent lubrication.

Engine . . . The DR-365 is powered by the popular General Motors 4-71 diesel engine. This is a rugged, two-cycle, four-cylinder engine that maintains its rated horsepower at high altitudes. All wearing parts such as valves, liners, guides and inserts are interchangeable with parts for all GM Series 71 engines including the engine used on the Gyro-Flo 600.

SPECIFICATIONS

Model of Gyro-Flo	DR-365 with Diesel Engine
Actual free-air delivery at sea level 100 psi discharge	365 cfm
Speed	1800 rpm
4 Pneumatic Tires	
Spring Mounted & Automotive Steering	
Net weight dry	5939
Gross weight—includes fuel, oil & water	6640
Length—less drawbar	10' 5 3/4"
Width	5' 8 1/8"
Height	6' 10 1/2"
Pneumatic Tires—8 ply heavy duty	6.50"x16"
Track width	56"
Less Running Gear	
Net weight dry	5279
Gross weight—includes fuel, oil & water	5980
Length	10' 2 7/8"
Width	4' 9 1/2"
Height—includes shipping skid	5' 2 3/4"

EXPORT:—Add 25% to weight for export packing. Cubic contents approximately 402 for wheel mounted, 300 for unit less running gear

Model DR-600

Diesel-Engine-Driven

Ingersoll-Rand
Portable Compressors

THE GYRO-FLO 600 represents the greatest advance in the design of portable compressors since Ingersoll-Rand introduced the two-stage air-cooled portable in 1932. Now, for the first time, the rotary, sliding vane principle has been successfully adapted to portable compressor use and has already made the Gyro-Flo 600 first choice with contractors who demand ruggedness, dependability and low-cost upkeep from their equipment.

Full 600 cfm of free air is delivered at 100 psi. The Gyro-Flo compressor is a two-stage, oil cooled rotary without valves, pistons, clutch and intercooler. It is driven by the well-known General Motors Series 71 diesel engine, a six-cylinder, two-cycle type and takes full advantage of modern speeds.

Up to 40% Lighter In Weight than other portables in the same capacity range. Weighs only 9528 pounds ready to run.

Compact . . . 20% smaller than other big-capacity portables.

No Valves to Leak . . . and no pistons, rings, rods or clutch.

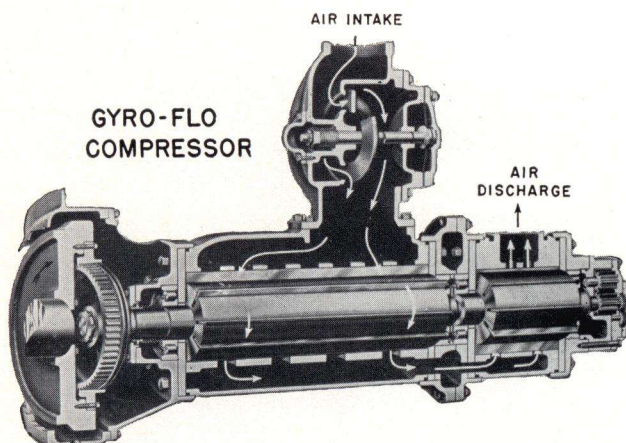
Never Gets Hot . . . discharge temperature less than 200°F under normal operating conditions . . . at least 100°F lower than with any previous portable compressor.

Low Oil Consumption . . . maintained throughout the life of the compressor.

APPLICATION: Air

Since modern construction methods demand equipment of ever-increasing capacity, such as larger power shovels and more powerful rock drills, the need is evident for a large-capacity portable air compressor in a small package. The Gyro-Flo 600 has been developed by Ingersoll-Rand to meet these rigid requirements. Weighing only 9528 pounds, it can easily be moved from job to job.

The Gyro-Flo is large enough to operate two of the most powerful wagon drills or a large number of other air tools and yet operate as efficiently as a smaller compressor when compressing air at less than full capacity.

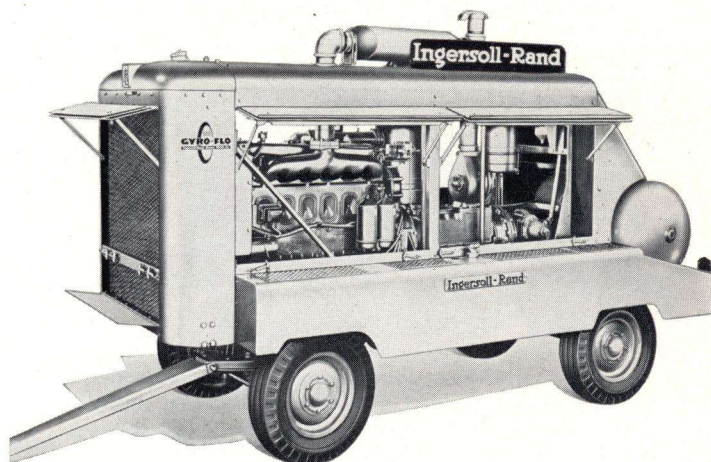


The GYRO-FLO is an oil-cooled, two-stage, rotary sliding vane compressor.

600 cfm size (other Portables from 85 cfm up)

Normal Operating Pressures: 85 to 115 psi

Two-Stage Oil-Cooled



The GYRO-FLO 600 is driven by the GM series 71 Diesel Engine.

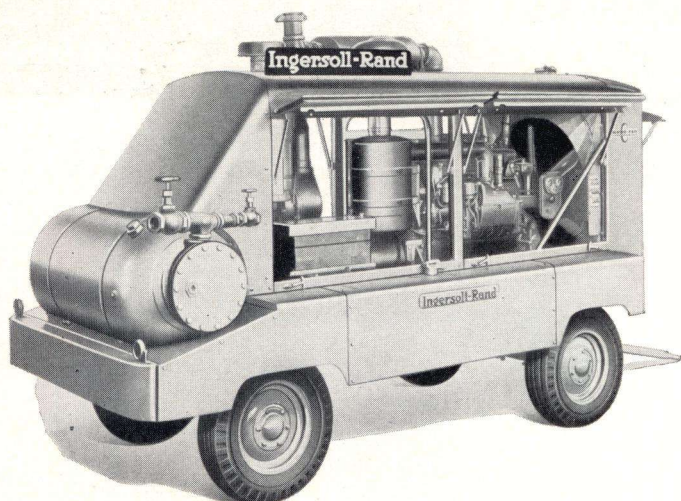
GENERAL CONSTRUCTION

Rotary Compressor . . . Essentially, the Gyro-Flo consists of a cylindrical rotor with a number of radial slots fitted with non-metallic sliding vanes. These vanes are held against the cylinder walls by centrifugal force when the compressor is operating. The cylinder is of considerably larger diameter than the rotor and is placed off-center . . . so that the air pockets formed by the vanes between the cylinder and the rotor *gradually* increase and decrease in size during each revolution. The air flows through the intake ports and is trapped in a pocket . . . then as the pocket decreases in size during rotation, the air is gradually compressed until it reaches the discharge ports.

The Gyro-Flo has two rotors . . . a long first-stage rotor and a short second-stage rotor of the same diameter mounted in tandem.

Oil-Injection Cooling . . . Cooled oil, from the main oil pump in rear of the compressor, is injected directly into the air during compression. This atomized oil mixes with the air and absorbs much of the heat of compression. At no point under normal operating conditions does the air temperature exceed 200°F. There is never any carbonization or breakdown of oil. No intercooler is necessary.

The oil performs three functions: It cools the air . . . it oil-seals the blades against air slippage . . . and copiously lubricates the sliding blades. In addition, oil feed lines also lubricate the four anti-friction roller bearings. Drilled internal oil passages eliminate the danger of leaky or ruptured oil lines. The oil is cooled by a large radiator-type oil cooler located in front of the engine radiator.



A fast-starting ether system assures prompt starting of the GYRO-FLO 600 in cold weather.

Oil Separator . . . The oil, which mixes with the air during compression, passes out through the discharge into a combination receiver and oil separator. Here, by means of baffles and a filter, the oil is removed from the air before it goes into the air hose. Of the oil circulated, 99.999% is recovered from the air by the separator. Oil consumption is low and stays low.

Air-Glide Capacity Control is the first portable compressor regulation system that controls compressor capacity smoothly and gradually all the way from 0 to 100% capacity. Just enough air is compressed to meet the demand at all times, thereby assuring top fuel economy and a minimum of wear and tear on both engine and compressor.

From full rated capacity of 600 cfm down to 60% capacity, the Air-Glide Regulator controls the output solely by varying the compressor speed through the engine governor. Below 60% capacity, the output is controlled by both speed variation and the Volumetric Regulator, a large valve which throttles the air intake to the compressor. Throughout the entire capacity range, the air pressure never goes below 100 psi nor above 110 psi, thereby assuring uniform work and more work done by drills and other air tools.

Model of GYRO-FLO.....	R-600 with Diesel Engine
Actual free-air delivery at sea-level 100-psi discharge...	600 cfm
4 Pneumatic Tires	
Spring-Mounted & Automotive Steering	
Net weight dry.....	8353 lbs
Net weight wet.....	9528 lbs
Length.....	13'-0 3/4"
Width.....	5'-11"
Height (pneu. tires).....	8'-0 3/4"
Pneumatic tires, 8-ply heavy duty.....	7.50" x 16"
Track width.....	60"
Less Running Gear	
Net weight dry.....	7777 lbs
Net weight wet.....	8952 lbs
Length.....	12'-9 3/4"
Width.....	5'-11"
Height, including shipping skid.....	6'-3 1/2"

EXPORT:—Add 15% to weights for export packing. Cubic contents approximately 633 for wheel mounted, 596 for units less running gear.

Unified Power Plant . . . The compressor and engine are combined into the well-known "unified power plant," being joined by a sturdy casting with counter-bored fits. The compressor is driven through an internal-external gear type coupling in which both gears have the same pitch diameter, making the coupling self-aligning longitudinally. The complete coupling assembly is sealed to prevent the entrance of dirt and retain permanent lubrication.

No clutch is needed with the Gyro-Flo. During the "breakaway" and initial starting period the blades are "free" until the rotating speed is sufficient to hold them against the cylinder walls. Thus with the blades out of contact with the cylinder, there is no compression. So with its anti-friction roller bearings, the rotor can be turned freely by hand.

Powerful GM 6-71 Diesel Engine is nationally known and has already established a reputation for portability and ease of maintenance on all types of industrial machinery. It is a 6-cylinder, two-cycle diesel designed to operate efficiently over a wide speed range and maintain its rated brake horse power at high altitudes. Ease of starting under all conditions is assured with a standard 12-volt battery system and fast-starting ether system for extremely low temperatures.

A Roots-type blower provides a continuous surplus of air to the Uniflow scavenging system which, in addition to cooling valves, pistons, cylinders and head, imparts a swirling action to the air and assures thorough mixing of air and fuel for more complete combustion.

All wearing parts such as valves, cylinder liners, valve guides and inserts are interchangeable. Separate Unit Injectors for each cylinder eliminate the need for high pressure fuel lines and can be replaced like a spark plug when necessary.

Other engine features include dual exhaust valves of silichrome . . . roller-type cam followers . . . short push rods for closer control of clearance . . . removable, dry cylinder liners with full-length cooling . . . accurate thermostatic temperature control . . . accessible valve mechanism . . . limiting-action governor.

Additional Features . . . Separate, extra-large, stack-type oil-bath air filters . . . Fold-up shutter hand-control for radiator and oil cooler . . . Eight-hour-capacity fuel tanks . . . Heavy metal housing with mud guards over all four wheels . . . Rugged running gear with spring mounting and automotive steering . . . Tachometer and hour meter . . . Parking reflector at rear.



Two Gyro-Flo 600's furnishing air to Ingersoll-Rand Wagon Drills during construction of a new super highway.

Model DR-900

Diesel-Engine-Driven



Ingersoll-Rand

Portable Compressors

The GYRO-FLO 900 was introduced in 1955 and since that time has successfully proven itself on some of the toughest jobs all over the world. Users have found that this compressor offers the same trouble-free performance and economy as the five smaller-size GYRO-FLO'S.

Full 900 cfm of free air is delivered at 100 psi. The Gyro-Flo 900 compressor is a two-stage, oil-cooled rotary without valves to leak, or rings, rods or pistons to wear. It is driven by the well-known General Motors Series 110 diesel engine and takes full advantage of modern speeds.

High efficiency is the result of two-stage compression, low temperatures, and oil injection which seals the blades against air slippage between compression pockets and at the ends of the rotors.

No Valves to Leak . . . and no pistons, rings or rods to wear.
No High Temperatures . . . As a result of oil-injection cooling, air temperatures are at least 160°F lower than in other types of compressors.

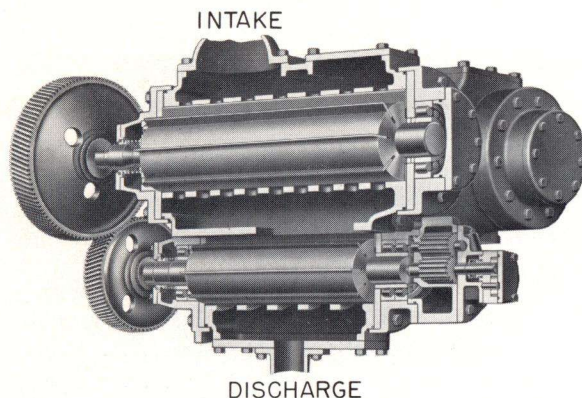
Low Oil Consumption . . . maintained throughout the life of the compressor.

APPLICATION: Air

Since modern construction methods demand equipment of ever-increasing capacity, such as larger power shovels and more powerful rock drills, the need is evident for a large-capacity portable air compressor. The Gyro-Flo 900 has been developed by Ingersoll-Rand to meet these rigid requirements.

GENERAL CONSTRUCTION

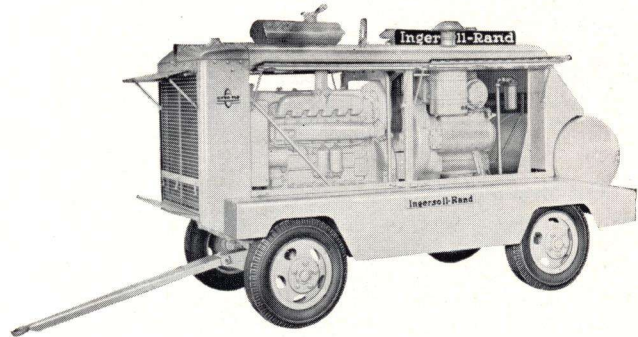
Rotary Compressor . . . Essentially, the Gyro-Flo consists of a cylindrical rotor with a number of radial slots fitted with non-metallic sliding vanes.



The Gyro-Flo 900 is an oil-cooled, two-stage, rotary sliding vane compressor.

900 cfm size (Other portables from 85 to 1200 cfm.)

Normal Operating Pressures: 85 to 115 psi.
 Two-stage Oil-cooled.



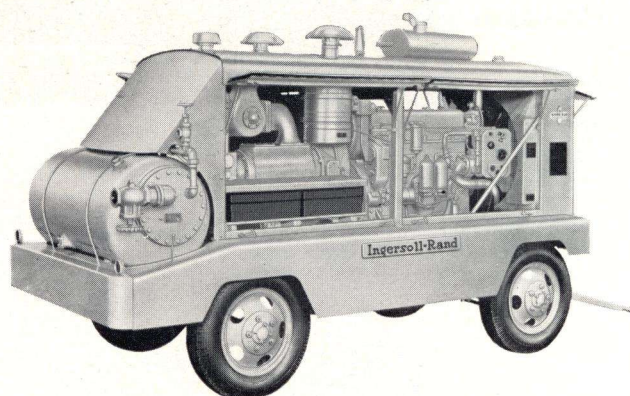
The Gyro-Flo 900 is driven by the GM series 110 Diesel Engine.

These vanes are held against the cylinder walls by centrifugal force when the compressor is operating. The cylinder is of considerably larger diameter than the rotor and is placed off-center . . . so that the air pockets formed by the vanes between the cylinder and the rotor gradually increase and decrease in size during each revolution. The air flows through the intake ports and is trapped in a pocket . . . then as the pocket decreases in size during rotation, the air is gradually compressed until it reaches the discharge ports.

The Gyro-Flo 900 has three cylinders in over-and-under design—two low-pressure mounted on top and one high-pressure mounted underneath.

Oil Injection Cooling . . . Cooled oil, from the main oil pump in the rear of the compressor, is injected directly into the air during compression. At no point under normal operating conditions does the air temperature exceed 200 F. There is never any carbonization or breakdown of oil. No intercooler is necessary.

The oil performs three functions: It cools the air . . . it oil-seals the blades against slippage . . . and copiously lubricates the sliding blades. In addition, oil feed lines also lubricate the four anti-friction roller bearings. Drilled internal oil passages eliminate the danger of leaky or ruptured oil lines. The oil is cooled by a large radiator-type oil cooler located in front of the engine radiator.



24-volt battery and ether-capsule system assures prompt starting in all types of weather.

Oil Separator . . . The oil, which mixes with the air during compression, passes out through the discharge into a combination receiver and oil separator. Here, by means of baffles and a filter, the oil is removed from the air before it goes into the air hose. Of the oil circulated, 99.999% is recovered from the air by the separator. Oil consumption is low and stays low.

Air-Glide Capacity Control is the first portable compressor regulation system that controls compressor capacity smoothly and gradually all the way from 0 to 100% capacity. Just enough air is compressed to meet the demand at all times, thereby assuring top fuel economy and a minimum of wear and tear on both engine and compressor.

From full rated capacity of 900 cfm down to 60% capacity, the Air-Glide Regulator controls the output solely by varying the compressor speed through the engine governor. Below 60% capacity, the output is controlled by both speed variation and the Volumetric Regulator, a large valve which

throttles the air intake to the compressor. Throughout the entire capacity range, the air pressure never goes below 100 psi nor above 110 psi, thereby assuring uniform work and more work done by drills and other air tools.

Unified Power Plant . . . The compressor and engine are combined into the well-known "unified power plant," being joined by a sturdy casting with counter-bored fits. The compressor is driven through an internal-external gear type coupling in which the gears have the same pitch diameter, making the coupling self-aligning longitudinally. The complete coupling assembly is sealed to prevent the entrance of dirt and retain permanent lubrication.

Flex-Disc Clutch, with Hydro-Shift . . . Connection between engine and compressor is provided through a spring loaded, flexible, 11½" double disc clutch. Positive connection between the flywheel and the drive disc, or discs, is provided through alloy steel spring arms which are formed in one piece with the disc segments. Four of these segments lock to each other in order to form a complete disc.

Means of engaging and disengaging the clutch are provided in the form of a small hydraulic pump connected to a shifting device having two cylinder and ram assemblies located on either side of the compressor shaft.

Powerful GM 6-110 Diesel Engine is nationally known and has already established a reputation for portability and ease of maintenance on all types of industrial machinery. It is a 6-cylinder, two-cycle diesel designed to operate efficiently over a wide speed range and maintain its rated brake horsepower at high altitudes. Ease of starting under all conditions is assured with a 24-volt battery system and fast-starting ether-capsule system for extremely low temperatures.

A Roots-type blower provides a continuous surplus of air to the Uniflow scavenging system which, in addition to cooling valves, pistons, cylinders and head, imparts a swirling action to the air and assures thorough mixing of air and fuel for more complete combustion.

Additional Features . . . Separate, extra-large, stack-type oil-bath air filters . . . Fold-up shutter for radiator and oil cooler . . . Large capacity fuel tanks . . . Heavy metal housing with mud guards over all four wheels . . . Rugged running gear with spring mounting and automotive steering . . . Parking reflectors at rear.

SPECIFICATIONS

Model of Gyro-Flo.....	R-900 with Diesel Engine
Actual free air delivery at sea level 100 psi discharge	900 cfm
4 Pneumatic Tires	
Spring-mounted & Automotive Steering	
Net weight dry.....	13,309
Gross weight—fuel, oil & water.....	15,065
Length.....	14' 9¼"
Width.....	6' 9½"
Height.....	9' 0"
Pneu. Tires, 8-ply heavy-duty.....	7.50"x20"
Track width.....	66"
Less Running Gear	
Net weight dry.....	11,769
Gross weight.....	13,525
Length.....	14' 6¾"
Width.....	6' 9"
Height.....	7' 5"

EXPORT:—Add 23% to weights for export packing. Cubic contents approximately 925 for wheel mounted. 900 for unit less running gear.

Power Take-Off

Direct or Belt-Driven



Ingersoll-Rand Compressors

Ingersoll-Rand's compact power take-off Gyro-Flo rotary compressors are especially designed for utility services in central metropolitan areas, or for any other air-power application where compact trucks and equipment are a necessity. Consisting of compressor, oil cooler and accessories all compactly mounted on a rigid baseplate, these rotaries are driven by the truck engine through either direct or belt drive from the truck power take-off. The air-operated engine speed control and the combination air-receiver—oil separator can be mounted wherever convenient.

FEATURES

- Air-Glide capacity control
- Oil-injection cooling
- Two-stage oil separation
- Combination air receiver—oil separator tanks located where convenient
- Minimum pressure valve
- Blow-down valve which automatically unloads the compressor after shutdown
- Temperature protection switch
- Thermally operated oil by-pass control valve which automatically maintains the correct oil temperature
- Belt-guard for safety
- Designed to meet minimum space requirements.

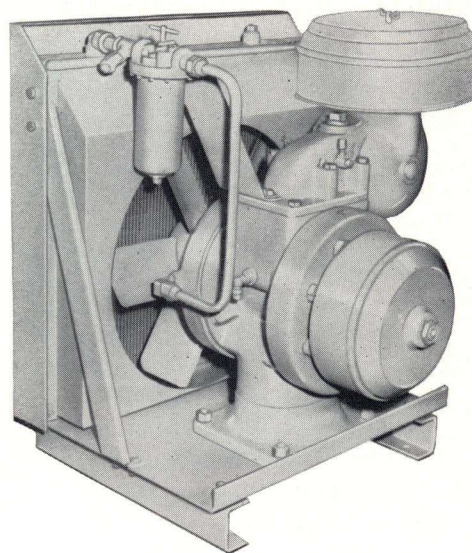


The single-stage, oil-cooled RS-85 P.T.O. unit weighs only 455 lb. ready to run.

85 and 125 cfm sizes

(wheeled units 85 to 900 cfm)

Normal Operating Pressures: 85 to 115 psi



The single-stage, oil-cooled RS-125 P.T.O. unit weighs only 680 lb. ready to run.

APPLICATION: AIR

Delivering full-rated 85 and 125 cfm of air, the Gyro-Flo power take-off compressors easily power the air tools needed for general utility services. Building contractors, plumbing and electrical contractors, utilities, town and country road crews can find many uses for the power take-off units in construction, demolition, maintenance and repair work, etc.

Progressive farmers, with power take-off equipped tractors, will find many uses for these compressors in and around barns, stables and in the fields. Spraying paint and insecticides, cleaning equipment and breaking up boulders in fields are some of the more common uses for P.T.O. units.



Compact RS-125 Gyro-Flo, mounted between the cab and body of a mid-western utility truck, delivers ample air for utility services, leaves room for men and other equipment.

GENERAL CONSTRUCTION

Rotary Compressor . . . Essentially, the single-stage Gyro-Flo power take-off units consist of a cylindrical rotor with a number of radial slots fitted with non-metallic sliding vanes. The vanes are held against the cylinder walls by centrifugal force when the compressor is operating. The cylinder is of considerably larger diameter than the rotor and is placed off-center—so that the air pockets formed by the vanes between the cylinder and the rotor gradually increase and decrease in size during each revolution. The air flows through the intake ports and is trapped in a pocket—then as the pocket decreases in size during rotation, the air is gradually compressed until it reaches the discharge ports.

Oil Injection Cooling—Oil-injection cooling and two-stage oil separation are two outstanding features found in all three types of Gyro-Flo compressors—wheeled, truck-mounted and power take-off units.

Cooled oil is injected directly into the air during compression. This atomized oil mixes with the air and absorbs heat of compression.

The oil performs three functions: it cools the air, it oil-seals the rotor vanes against air slippage; and it copiously lubricates the sliding vanes.

The oil, which mixes with the air during compression, passes out through the discharge into a combination receiver and oil separator. Here, by means of baffles and a special filter developed by Ingersoll-Rand, this oil is removed from the air before it goes into the air hose. Oil consumption is low and stays low. Before returning to the compressor, the oil is cooled by a large air-cooled oil cooler.

Air Glide Capacity Control—An exclusive feature found in all three styles of Gyro-Flo compressors, Air-Glide was the first stepless regulation system that controlled compressor capacity smoothly and gradually all the way from 0 to 100% output. It is the finest control available.

Floating-Speed engine control is combined with variable intake unloading of the compressor to entirely eliminate “all-on-all-off” regulation. The compressor runs only fast enough to meet the demand for air, thereby assuring top fuel economy and a minimum of wear and tear on both engine and compressor. Throughout the entire capacity range, the air pressure stays between 100 - 110 psi,* thereby assuring uniform work and more work done by drills and other air tools.

*Normal factory setting.

Thermo By-Pass Control . . . Located in the oil piping, it by-passes varying amounts of oil, depending on the temperature, around the cooler until the circulated oil reaches a temperature of 185°. The control then closes the by-pass completely and all the oil is circulated through the cooler. The most efficient compressor operating temperature is automatically maintained, and the possibility of water vapor condensing in the oil system is greatly reduced.

SPECIFICATIONS

MODEL	Oper. Press Psi	Act Del Cfm	Speed Rpm	wt. lb.	Dimensions		
					L* inches	W inches	H inches
RS-85	100	85	2100	455	23	21½	29¾
RS-125	100	125	1800	680	26	25⅝	30½

*Add one inch for belt-guard

Truck-Mounted

For any style truck



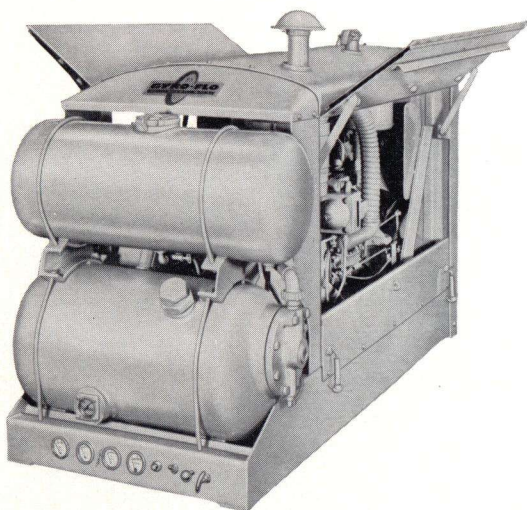
Ingersoll-Rand Compressors

Ingersoll-Rand's GRU-85 and GRAU-125 Gyro-Flo rotary portable compressors are ideal for utility services and other applications which require independently powered, truck-mounted compressors. Surprisingly compact and lightweight, they conform readily to vehicle width limitations, can be mounted crosswise directly behind the truck cab, or in any desired position on any type or style of truck.

Delivering full-rated 85 and 125 cfm of air at 100 psi respectively, the GRU-85 and GRAU-125 easily power the air tools needed for general utility services, yet leave valuable room for men and other equipment. Since they are self-contained and have no belts, clutches or gears, they can be dismounted and operated independently, freeing the truck for other services.

FEATURES

- Air-Glide capacity control
- Oil-injection cooling
- Two-stage oil separation
- Minimum pressure valve
- Thermally operated oil by-pass control valve which automatically maintains correct oil temperature
- Temperature protection switch
- Grouped operating controls conveniently located at curb end of compressor

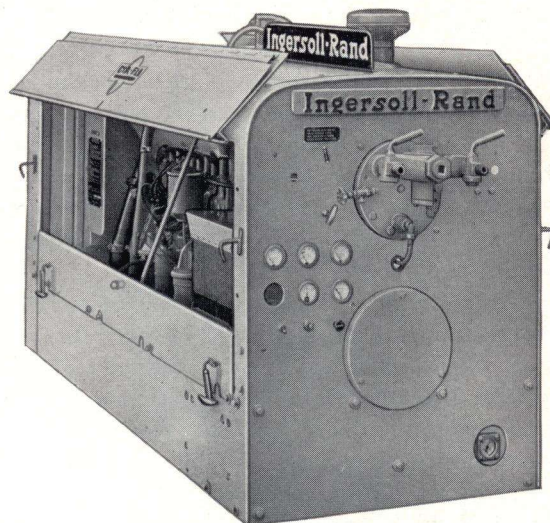


The Gyro-Flo GRU-85 is driven by the Continental F-140 gasoline engine.

85 and 125 cfm sizes

(other portables to 900 cfm)

Normal Operating Pressures: 85 to 115 psi



The Gyro-Flo GRAU-125 — two-stage, air-cooled - 2245 lb. ready to run.

GENERAL CONSTRUCTION

Rotary Compressor . . . Essentially, the Gyro-Flo consists of a cylindrical rotor with a number of radial slots fitted with non-metallic sliding vanes. These vanes are held against the cylinder walls by centrifugal force when the compressor is operating. The cylinder is of considerably larger diameter than the rotor and is placed off-center . . . so that the air pockets formed by the vanes between the cylinder and the rotor gradually increase and decrease in size during each revolution. The air flows through the intake ports and is trapped in a pocket . . . then as the pocket decreases in size during rotation, the air is gradually compressed until it reaches the discharge ports.

Oil Injection Cooling . . . Cooled oil, from the main oil pump in the rear of the compressor, is injected directly into the air during compression. At no point under normal operating conditions does the air temperature exceed 200°F. There is never any carbonization or breakdown of oil. No intercooler is necessary.



The oil performs three functions: It cools the air . . . it oil-seals the blades against air slippage and copiously lubricates the sliding blades. In addition, oil feed lines also lubricate the four anti-friction roller bearings. Drilled internal oil passages eliminate the danger of leaky or ruptured oil lines. The oil is cooled by a large radiator-type oil cooler located in front of the engine radiator.

Oil Separator . . . The oil, which mixes with the air during compression, passes out through the discharge into a combination receiver and oil separator. Here, by means of baffles and a filter, the oil is removed from the air before it goes into the air hose. Of the oil circulated, 99.999% is recovered from the air by the separator. Oil consumption is low and stays low.

Air-Glide Capacity Control is the first portable compressor regulation system that controls compressor capacity smoothly and gradually all the way from 0 to 100% capacity. Just enough air is compressed to meet the demand at all times, thereby assuring top fuel economy and a minimum of wear and tear on both engine and compressor.

From full rated capacity down to 60% capacity the Air-Glide Regulator controls the output solely by varying the compressor speed through the engine governor. Below 60% capacity, the output is controlled by both speed variation and the Volumetric Regulator, a large valve which throttles the air intake to the compressor. Throughout the entire capacity range, the air pressure stays between 100-110 psi,* thereby assuring uniform work and more work done by drills and other air tools.

Thermo By-Pass Control . . . Located in the oil piping, it by-passes varying amounts of oil, depending on the temperature, around the cooler until the circulated oil reaches a temperature of 185°F. The control then closes the by-pass completely and all the oil is circulated through the cooler. The most efficient compressor operating temperature is automatically maintained, and the possibility of water vapor condensing in the oil system is greatly reduced.

Unified Power Plant . . . The compressor and engine are combined into the well-known "unified power plant," being joined by a sturdy casting with counter-bored fits. The compressor is driven through an internal-external gear type coupling in which the gears have the same pitch diameter making the coupling self-aligning longitudinally. The complete coupling assembly is sealed to prevent the entrance of dirt and to retain permanent lubrication.

*Normal factory setting.

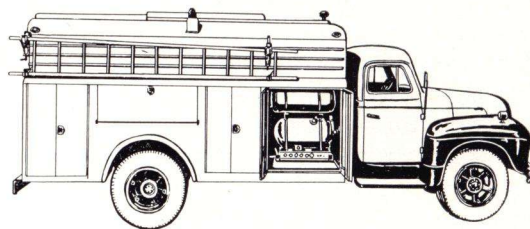
CONTINENTAL RED SEAL ENGINES

Both the GRU-85 and GRAU-125 are powered by heavy-duty Continental engines

The GRU-85 utilizes the well-known F-140 Gasoline Engine—a rugged 4-cylinder, 4-cycle engine with "L" head design and exclusive INDIVIDUAL PORTING which provides maximum power when using standard grades of gasoline.

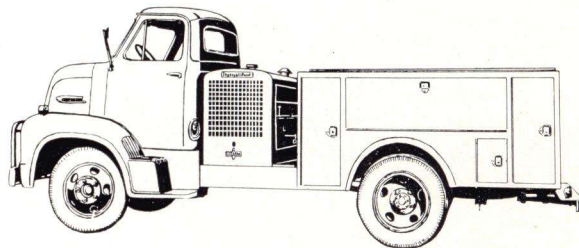
The 125 cfm size, both gasoline and diesel units, are powered by the new Continental Series 193 engines. These modern overhead valve engines feature full-pressure lubrications, controlled temperature cooling system, anodized aluminum alloy pistons, chrome top rings, new alloy steel valves and inserts, and positive rotating exhaust valves for a long life of low-cost efficient operation.

The F-140 and 193 engines are equipped with push-button starting, and ease of starting under all conditions is assured with a heavy-duty 12-volt battery system.



A-2129

Easily mounted in enclosed trucks, or on an open truck.



SPECIFICATIONS

MODEL.....	GRU-85	GRAU-125
Oper. Press. psi.....	100	100
Actual Del. cfm....	85	125
Speed, rpm.....	2100	1800
Weight.....	1550	2245
Length.....	5'-7 ⁹ / ₁₆ "	6'-5 ³ / ₄ "
Width.....	2'-6 ³ / ₈ "	2'-8 ¹ / ₄ "
Height.....	3'-6"	3'-9 ¹ / ₂ "



Model 3R-36

gasoline-engine-driven

Ingersoll-Rand Portable Compressors

ONLY 32 inches high and 27 inches wide, the SPOT-AIR is the lightest, most compact portable compressor yet developed. Capable of being carried by two men or moved from job to job in a small pick-up truck or automobile, this gasoline-powered unit saves time and effort on all types of maintenance work. With the wheelbarrow mounting, one man can easily transport both the compressor and air tools.

APPLICATION: Air

Building Contractors find many uses for the SPOT-AIR in construction, demolition, maintenance, and repair work. It saves time and improves the work on practically any job where Air-Power is applicable. On big contracts, this unit can handle the smaller or urgent here-and-there jobs, eliminating transportation and tie-up of larger compressors.

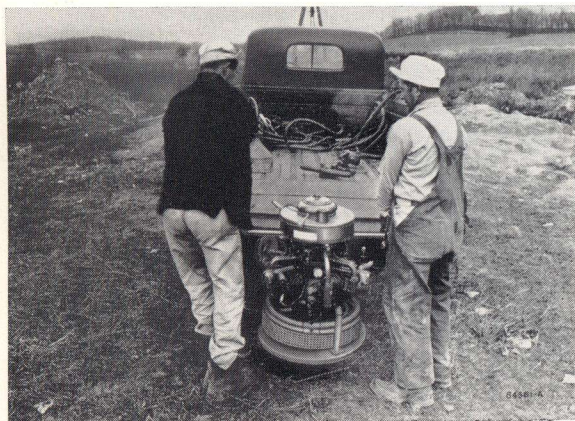
Plumbing and Electrical Contractors can use the SPOT-AIR to great advantage on jobs requiring digging or drilling for pipe lines, conduits, wiring, and fixtures, and for spraying paint.

For Cemetery Work the SPOT-AIR is really handy. Digging hard or frozen ground, breaking-up large rocks, drilling blast holes, tamping backfill, and sand-blast carving are just a few of its many applications.

Progressive Farmers will find hundreds of uses for the SPOT-AIR in and around barns and stables and in fields. Spraying paint and insecticides, cleaning equipment, and breaking up boulders in fields are some of the more common jobs it will handle.

Extreme lightweight and portability make the SPOT-AIR ideal for many small, here-and-there jobs. It has sufficient capacity to operate a wide range of Ingersoll-Rand air tools for many uses including:

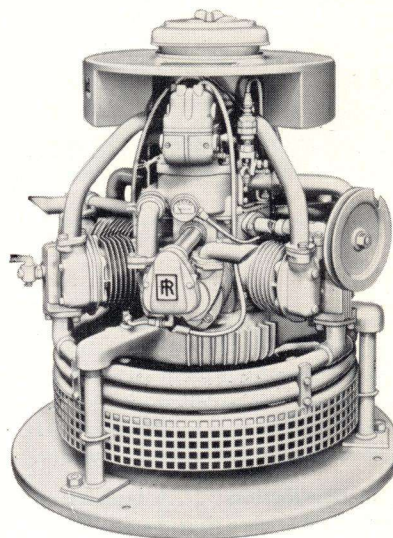
Paint Spraying	Riveting
Tamping Backfill	Breaking Concrete
Vibrating Concrete	Trench Digging
Laying Pipe	Chipping or Scaling



The SPOT-AIR requires only a small space on a pickup truck and can be carried by two men.

36-cfm size

80 psi Single-Stage Air-Cooled



GENERAL CONSTRUCTION

New Design Principle . . . Three power cylinders and three air compressor cylinders are mounted radially around a vertical, single-throw crankshaft. Alternate spacing of these cylinders at 60 degree intervals gives smooth conversion of engine torque into air-power without the need of a heavy flywheel. One master connecting rod with five link rods serves to connect the six pistons to the crankshaft.

By means of the wheelbarrow mounting, one man can take the SPOT-AIR almost anywhere.





SPOT-AIR powering I-R Size 73 Digger with special ground rod driver attachment.



The 3R-36 SPOT-AIR used in paint spraying operation.

Force-Feed Lubrication assures long bearing life and minimum cylinder wear. A large capacity, gear-type, oil-circulating pump force-feeds oil to all gears, bearings, cams, and lifters. The pump is mounted within the main body of the unit and is driven directly by the crankshaft. The lubricating oil pressure is easily adjusted for operating conditions.

Automatic Regulation . . . A built-in, constant-speed governor can be adjusted so that the SPOT-AIR compresses just enough air to meet the demand of the air tools being used. Slow-speed starting and manual slow-down during unloaded periods save much fuel.

Oil-Bath Type Air Filter serves both air and power cylinders . . . Assures dust-free air and reduces wear on moving parts.

Rugged and Easily Maintained . . . The SPOT-AIR is solidly built to last a long life of hard service. Maintenance is reduced to a minimum through simple design. Cylinder heads, valves, carburetor and magneto are accessible for cleaning and adjustment.

Reliable, Four-Cycle Gasoline Engine . . . Overhead alloy steel valves with adjustable tappets assure reliable performance and permit easy maintenance. Exhaust valves are of the "free type" which allow rotation. They have Stellite seat inserts. The Hy-duty magneto is equipped with an impulse coupling which provides full spark strength for easy starting. The fuel-tank capacity permits 2- 2½ hours, continuous operation.

Complete Air Cooling . . . A dynamically balanced, combination fan and flywheel drives cooling air over deep cast fins on all cylinders, heads, and oil sump, thus permitting operation in any kind of weather without danger of freezing or overheating.

Highly Efficient Channel Valves in the air cylinders are specially arranged for the SPOT-AIR. These quiet, durable valves are light-weight, stiff channels which lift straight off the seat, giving a full opening the entire length of each port. A flat, bowed-leaf type valve spring fits within each channel, forming an air cushion which floats valves to a stop without impact.



By the means of the wheelbarrow mounting, one man can take the SPOT-AIR almost anywhere.



Using a PB-59 Paving Breaker with tamping pad to compact earth prior to concreting.

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OTHER INGERSOLL-RAND PRODUCTS

AFTERCOOLERS, AIR AND GAS

AIR TOOLS

Air Motors
Angle Drills
Angle Wrenches
Assembly Machines (manual or automatic) with nut runners, screw drivers or other fasteners
Backfill Tampers
Chipping Hammers
Clay Diggers
Concrete Vibrators
Core Breakers
Drills, Multi-Vane
Drill-Steel Cutter
Engine-Starting Motors
Grinders, Multi-Vane
Impacttools, with and without Torque Control
Ratchet Wrenches
Riveters and Holders-On
Sanders
Sand Rammers
Saws, Air-Powered
Scaling Hammers
Screw Drivers & Nut Setters
Stationary Motors
Sump Pumps
Surface Grinders
Wire Brush Machines
Wire Wrappers
Wood Borers
Wrenches, Torque, Angle, Ratchet, and Impact

COMPRESSORS AND BLOWERS

Centrifugal

Ejector-Jet

Reciprocating

Rotary

Air and Gas
Automotive Service
Axi-Compressors (axial-flow rotary)
Channel-Flo (small, packaged)
Engine-Compressor Units (integral) for steam, gas & diesel drive
Exhausters
Gyro-Flo Portable (rotary)
Motorcompressors
Motor-Blowers
Non-Lubricated
Process
Spot-Air (small portable)
Turbo-Blowers
Vacuum Pumps

CONCRETE BUSTERS

CONDENSERS, STEAM

Barometric, Counter-Current, Disc-Flow & Ejector-Jet Types
Marine & Stationary
Surface

CORE DRILLS

Calyx
Manhole
Pavement-Testing
Shaft-Work

ELECTRIC TOOLS

Multi-Cycle & Universal
Multi-purpose Impacttools
Power Hammers

ENGINES

Diesel, Stationary & Marine
Gas

HOISTS

Overhead, Air
Utility, Air
Single, 2 & 3 Drum, Air & Electric

PAVING BRAKERS (hand-held)

PILE DRIVERS (hand-held)

PUMPS (Cameron)

Boiler-Feed
Centrifugal
Chemical
Circulating
Condensate-Return
Coolant
Fire
General-Service
High Pressure
Marine
Mine
Motorpumps
Paper-Mill
Pipe-Line
Propeller
Refinery
Sump Pump (Air-Operated)

R. R. MAINTENANCE-OF-WAY

Compressors, Railway Mtg.
Rails Drills
Spike Drivers
Spot-Air Compressors
Tie Tampers
Track Wrenches

RECEIVERS, AIR AND GAS

REFRIGERATING UNITS

Compressors for ammonia, other refrigerants
Steam-Jet Water-@Vapor

ROCK DRILLS

Accessories and Hose
Air-Line Lubricators
Crawl I-R
Drifters
Drillmaster
Hydra-Booms
Jackhammers
Jackdrills
Jacklegs
Pickhammers
Power-Feeds
Quarrymaster
Stopehammers
Submarine
VacuJet (dustless Stoper)
Wagon Mountings

ROCK-DRILL BITS & RODS

Carset Bits
Drill Steel Cutter
Drill Steel Furnace
Drill Steel Shank Grinders
Jackbits
Jackbit Grinders
Jackrods
Jackfurnace (for Jackbits)
Jackrod Threading Equipment

SHARPENERS AND FURNACES

For Jackrods, Rock Drill Steel and Bits

VACUUM PUMPS

Axi-Compressors
Ejector-Jet
Reciprocating Dry



Official Ingersoll-Rand 6-Star Tool Repair Service Depots stretch from coast-to-coast, guaranteeing you continuous, profitable tool operation no matter where your plant may be located.

Ingersoll-Rand 6-Star Tool Repair Service keeps your tools at peak performance — at minimum cost and back in production promptly. Periodic inspections and checks are made on Ingersoll-Rand tools without cost or obligation. If repairs are needed, your tool is restored to original performance. Complete satisfaction is certified by Ingersoll-Rand's factory standard warranty.

Look for your nearest Ingersoll-Rand 6-Star Service Depot in the list shown or check the Yellow Pages.

★ FREE TOOL INSPECTION

Without cost or obligation, you can get your Ingersoll-Rand tools inspected and scientifically evaluated on factory testing devices. Performance and results are compared with original ratings at your nearby Ingersoll-Rand 6-Star Tool Repair Service Depot and reported promptly.

★ FREE REPAIR ESTIMATES

The estimated cost of any repairs or replacement parts your tool may need to restore it to original performance will be given you without cost or obligation.

★ FACTORY TRAINED TECHNICIANS

Ingersoll-Rand 6-Star Repair Service Depots are staffed with fully qualified graduates of the Ingersoll-Rand Factory Service Training Course.

★ GENUINE INGERSOLL-RAND PARTS

Depots maintain complete stocks of genuine Ingersoll-Rand parts and accessories for all air and electric tools. You don't have to wait for replacement parts and you know they are top Ingersoll-Rand quality.

★ NEW TOOL PERFORMANCE CERTIFIED

After servicing, you get Ingersoll-Rand certification that your tool has been brought up to its original performance capacity and carries a new tool warranty. Scientific instruments check speed, power and performance against original specifications.

★ FAST ECONOMICAL SERVICE

Fast service and reasonable costs go along with expert Ingersoll-Rand service. Tools are restored to original capacity promptly and at minimum cost to you.

YOUR NEAREST 6-STAR TOOL REPAIR SERVICE DEPOT IS LISTED BELOW

- **BALTIMORE, MD.**
4 West Aylesbury Rd.
Timonium, Md.
Phone: CLeabrook 2-1881
- **BIRMINGHAM 3, ALA.**
1700 Third Ave., South
Phone: FAirfax 3-2576
- **BOSTON 16, MASS.**
285 Columbus Ave.
Phone: KEnmore 6-2280
- **BUFFALO 2, N. Y.**
117 W. Chippewa St.
Phone: TL 2-6437
- **CHICAGO 7, ILL.**
1444 S. Canal St.
Phone: DEarborn 2-4626
- **CINCINNATI 6, OHIO**
428 McGregor Ave.
Phone: PLaza 1-8060
- **CLEVELAND 3, OHIO**
4506 Chester Ave.
Phone: EXpress 1-9889
- **DALLAS 7, TEXAS**
8901 Directors Row
Phone: MElrose 1-9550
- **DETROIT 26, MICH.**
Congress at First
Phone: WOodward 3-5504
- **HOUSTON 27, TEXAS**
4211 Richmond Ave.
Phone: MOhawk 7-8341
- **INDIANAPOLIS 20, IND.**
2416 Stewart Ave.
Phone: CLifford 5-3151
- **NORTH KANSAS CITY 16, MO.**
1537 Atlantic St.
Phone: GRand 1-4525
- **LOS ANGELES 22, CALIF.**
5533 E. Olympic Blvd.
Phone: RAYmond 3-0131
- **MILWAUKEE 13, WISC.**
11905 W. Ripley Ave.
Phone: SPRing 1-0265
- **MINNEAPOLIS 4, MINN.**
2020 Snelling Ave.
Phone: FEderal 9-7005
- **NEW ORLEANS 26, LA.**
960 S. Genois St.
Phone: HUunter 8-0885
- **NEW YORK 13, N. Y.**
55 Van Dam St.
Phone: WHitehall 4-4750
- **PHILADELPHIA 29, PA.**
4041 Ridge Ave.
Phone: LOcust 7-7535
- **PITTSBURGH 24, PA.**
4076 Woolslayer Way
Phone: ATLantic 1-9070
- **RICHMOND 30, VA.**
3431 West Leigh St.
Phone: ELgin 5-7871
- **SAN FRANCISCO 7, CALIF.**
350 Brannan St.
Phone: GARfield 1-6330
- **SCRANTON 5, PA.**
605 Davis St.
Phone: DIamond 6-3885
- **SEATTLE 4, WASH.**
526 First Ave., South
Phone: MAIn 2-2866
- **ST. LOUIS 32, MO.**
1515 Page Industrial Blvd.
Phone: HArrison 9-4200
- **TULSA 20, OKLAHOMA**
407 S. Peoria Ave.
Phone: LUther 3-6291
- **MONTREAL 9, QUEBEC**
5340 Ferrier St.
Phone: REgent 1-8261
- **TORONTO 12, ONTARIO**
234 Eglinton Ave. East
Phone: HUdson 7-1381
- **VANCOUVER, BRITISH COLUMBIA**
1177 West Pender St.
Phone: MUtual 1-0274

SALES BRANCHES AND AGENTS IN MANY OTHER CITIES THE WORLD OVER

Ingersoll-Rand

11 Broadway, N. Y. 4, N. Y.

PORTABLE TOOL SALES AND SERVICE, INC.
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CHICAGO 51, ILL.
ES 9-0161
13401 S. HALSTED ST.
CHICAGO 27, ILL.
WA 8-0234
VI 9-4400